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The Stawell Oration.[1]

THE WORLD FOOD PROBLEM—TECHNICAL OR SOCIAL?

By S. M. WADHAM, M.A., Dip.Agr.,

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THE personal contacts which I had the good fortune to make with Sir Richard Stawell were limited, but nevertheless sufficiently significant to make a lasting impression on my mind. We were both members of the governing body of Trinity College, Melbourne, for some years during a period in which several matters of complexity were under discussion. I used to admire his calm, human approach to problems. However wide the divergences of opinion expressed might be, no matter how unattainable a satisfactory solution might seem, he was always the same, at times seeking further information which might undermine the difficulties sensed by some, at others endeavouring to suggest a new approach which might lead some on the opposite side to see the issue from a new standpoint and thus arrive at a basis for common action. He often made these attempts when affairs were difficult. Some among this audience may remember an occasion when, in company with the late Dr. Mark Gardner and myself, Sir Richard Stawell addressed a rather larger body than the Council on matters affecting the college. My observations led me to the conclusion that he was a man of great courage when courage was needed, and further, a man of great resource, which he had the capacity and the will to use in fields beyond those of the profession to which he belonged.

Another occasion on which I met him at close quarters arose when he asked if I would go to see him about a member of my staff who had consulted him. Again, it was the human problem in which he was interested. The way in which he put the matter to me revealed in Sir Richard Stawell the man of great sympathy and understanding, ready to devote his time and effort to arranging the details which would give his patient the best chance of overcoming the oppressive physical disability.

And so the memories remain—of great patience, great understanding and a tolerance of human frailty and weakness both mental and physical. These were the qualities of his mind which impressed me—a mere agriculturist interested in clods and cows and food.

It is only natural that I should feel somewhat diffident in standing before you tonight endeavouring to honour this great man of a receding period, and naturally I found it somewhat difficult to choose a subject which would not seem too mundane for such an occasion. However, in these

[1] Read at a meeting of the Victorian Branch of the British Medical Association on October 1, 1952.

modern days the general relationship between food and health has been recognized in many quarters, if not in all. Further, in most minds there is a tacit assumption that scientific progress is closely linked with the production of more food for expanding populations in this and other countries. Some observers seem to go so far as to suggest that if all the findings of modern science were effectively applied to agricultural practice here and elsewhere, there would be no world food problem. Maybe that is true, but the fact remains that these findings are not so applied, and therefore the problem remains. This is much the same thing as saying that the question is mainly a human question, not soluble in terms of physics, chemistry or biology. The fact that it is, in my opinion, a question of human mentality and behaviour automatically makes it the sort of question in which, from my limited experience, I think Sir Richard would have been interested. For that reason I came to the conclusion that it would be a fitting subject on which to speak this evening.

THE FOOD AND POPULATION PROBLEM.

I shall refer to the food and population problem as seen by three of its outstanding exponents during the last century and a half. I shall try to emphasize the agricultural advances which have made their gloomy prognostications, as yet, untrue. In this survey the nature of the forces leading to an increase in the volume of food production will appear. This is important, because the solution of the problem as it stands today will presumably be determined by the same forces. This line of thought should therefore leave us with some conclusions of value.

In these days of sensational journalism and educational systems devoid of basic philosophy, scares abound. Publicists of various types, having accumulated a modicum of information about some topic or other, forthwith proceed to write a book, or books, on the subject. Their style is designed to lead the uninitiated to suppose that they have real knowledge of all phases of their problem. We seem expected to believe that the age in which we live is the first to be confronted with the particular dilemma which they expound. Possibly in some cases this is true: the possibility of atomic fission, for instance, brought an entirely new range of problems within view; but yet the discoveries of gunpowder and of the electric current were in their days equally potent influences for good or evil on the development of mankind.

The World Food Problem is Age-Old.

Those who suggest that the world food problem is particularly one of this century are certainly incorrect. All down the ages the uncertainties of acquiring future meals have been a continuing source of anxiety to the majority of mankind. The spectre of prospective starvation, or at least of acute food shortage, has seldom been absent for more than a few years. Malnutrition and disease, not wars, were the controlling factors of population, and of these two the latter was not infrequently aggravated by the former. The harvest festival, which we treat so lightly these days, is a vestigial relic of a heartfelt collective desire to give thanks for a harvest which would, in a good season, provide reasonably well the dreary diet which was the lot of the majority of the people for most of the winter.

In at least some of the periods when the pressure of population on food supply was less intense than others the cause seems to have been widespread plagues, which swept the country and killed off a large proportion of the people. When this happened, the surviving remainder had the same area of land available for the production of about the same amount of food for fewer people. The Black Death, which swept England between 1348 and 1350, was one such pestilence. It reduced the population by about one-third, and incidentally led to the destruction of the feudal system in many districts.

This, then, is the first point. As a rule, starvation was just around the corner for the poorer people through the Middle Ages. This state of affairs was fundamental and it still persists in the less highly organized (or should I say less civilized?) parts of the world. In the latter countries it is a chronic state of affairs accepted as normal by the people.

The period of 1880 to 1940 is entirely exceptional. During this period the amount of food available in countries belonging to the European-American system has been abundant. We who have had the good fortune of living in this period are apt to have a somewhat incorrect appreciation of the long-term position of food in the world. War periods excepted, there has been in our time, in the countries belonging to our "Western" group, enough food to keep everyone from starving and a social conscience which ensured that they did not do so—although it must be admitted that for many of the people the food was not always of a quality and type to prevent some of the results of malnutrition. This general position in our own countries has obscured in many minds the fact that such a state is exceptional in the world's history. Perhaps some may have preferred not to notice that it was not, and is not, a universal state.

Malthus's Gloomy Views.

I will not delay the argument by referring to earlier writers on the food and population problem, but will come to Malthus,[1] who in 1798 produced his "Essay on the Principle of Population", which he further expounded in later editions. It is one of those works which earned for the study of economics the soubriquet "the dismal science". In it he studies the problem in general, and concludes that "population is kept down to the level of the means of subsistence" and that "the poverty and misery which prevail among the lower classes of society are absolutely irremediable", largely as a result of the tendency of populations to expand at a rate greater than the food supply on the one hand and the capacity of the economic system to absorb them on the other. He analysed the conditions of life in a large number of countries, pointing out in each case the factors which held populations in check and the extent to which starvation had been prevalent or was likely to become so. They are cold, detailed analyses, and should serve to remind modern readers of the care with which the older economists approached their problems. The effects of his writing on current thought were considerable, both because the subject touched the lives of every family and because the facts set out were significant in economic argument dealing with the stability of nations.

In order to appreciate the circumstances under which Malthus wrote, it is necessary to make a brief survey of the trends in English agriculture during the century which preceded the production of his essay. This eighteenth century saw many changes in farming methods and a definite stage of reform in the land tenure system. Both of these were significant in raising the level of production. At the beginning of the century Jethro Tull[2] invented the seed drill and the system of growing farm plants in rows, thus making it possible to keep the land between the rows free from weeds by the use of a horse-drawn hoe, if the acreage was sufficient to warrant the use of an implement of such size. Then followed the introduction of row-grown root crops, which could be stored in order to provide succulent food for cattle in winter—an innovation which meant carcasses properly finished for the butcher during the cold season, fresh meat instead of salt—for those who could afford it. Animals were also improved by a study of breeding methods; for instance, Bakewell increased the size of the average sheep from that of a collie dog.

However, if these improved methods were to be successfully adopted by a farmer it was essential that his grazing animals should be controlled and kept separate from those of neighbours. They also had to have access to part of the cultivated land of the farm at certain seasons of the year. The new methods were not possible under the old system of land tenure, which held much of the grazing land as "common" and available to all villagers who had common rights. The better methods of farming could not be used on the open field farms, which were still frequent in some parts of the countryside. The change in the land system could be brought about only by Acts of Enclosure, a separate one of which was required for each specific case. When George III came to the throne in 1760, about 150

Bills had been passed for the enclosure of commons. When he died in 1820, the number had risen to about 3700. The process involved the dispossession of large numbers of small farmers and either their transformation into agricultural labourers or their migration to the cities. The change has been roundly condemned by enthusiastic individualistic writers, who seem able to view the life of the peasant only through rose-tinted glasses, and who have a marvellous capacity to avoid seeing the malnutrition and misery which had been the lot of many in a bad season. Whatever its defects from the point of view of rural sociology, the change resulted in Britain being able to supply its people with food during the critical period of the Napoleonic wars, despite the fact that the population had increased greatly. These wars were a time of currency inflation, with consequent social and economic turmoil, rather similar to that which we ourselves have recently experienced. Such was the background against which Malthus viewed the world and its food problems. He thought that increase in agricultural production through better methods could not enable the world to continue to feed its increasing populations.

The depression which followed the Napoleonic wars was a setback to British agriculture, because capital investment was difficult until the monetary system had readjusted itself and surmounted its inflationary troubles. By the 1840's, however, general industrial expansion was in full swing and agricultural development began on a grand scale. This was the great period of high farming in Britain; it lasted until the 1870's (Ernle[3]). It was also a period of expansion in rural activity in other parts of Europe, while improved methods of transport enabled the flow of trade in agricultural products to increase in the world as a whole. It was these two forces—the improvement of techniques in Britain and Europe, and the ever-increasing amount of imports from overseas—which carried Western civilization through the nineteenth century, and proved Malthus's gloomy forebodings of disaster as incorrect—at least temporarily. Of course, I freely admit that during part of this period the load of human misery borne by the poorer sections of the community partly justified the thesis which he expounded so effectively.

Production in New Lands, 1880 Onwards.

I said that British agriculture expanded greatly up till the 1870's. In this decade the railways in the United States of America crossed the prairies and land settlement on 160-acre blocks took place at great speed on these immense tracts of fertile soil. Similarly, in Australia the railways were moving across the plains of northern Victoria and into new potential wheat-growing districts in South Australia. Russia also was expanding her exports, and millers had discovered how to grind the hard, strong wheat of the basin of the Danube and the Ukraine. These sources, with the Argentine, took up the strain, and the supplies of grain available for Europe during the last two decades of the nineteenth century were greater than they had ever been before. These large supplies lowered the price and brought periods of great stress to cereal growers in Britain. Refrigeration had now been applied to the holds of ships, and the British farmers' market for perishable products was also threatened. Butter, all types of meat, and some sorts of fresh fruit poured into the country in increasing volumes. Small wonder that British agriculture went through an economic crisis of the first order, for it could not compete with these new producers who were using virgin soil, often without any artificial fertilizer and with relatively few weed problems. In many regions these new farms could be mechanized, and the output per man employed was considerably greater than in the older countries, where the exigencies of the climate made it difficult to use some of the modern machines. Most countries of Western Europe adopted a tariff as a means of protecting their rural producers, although some with very skilful control of production and marketing actually built up export industries in animal products, using cheap grain as foodstuff.

My second point, therefore, is that through better technology in farming and through the development of new sources of supply the food position improved and the general standard of nutrition in Europe rose during the nineteenth century despite increasing populations.

Sir William Crookes's Forecasts.

The next prominent person to emphasize the world food problem to a large section of the public was Sir William Crookes. A distinguished physicist, he used his position as president of the British Association for the Advancement of Science in 1898 as an opportunity to state his opinions about the peril which faced the world and about what could be done to avoid it. He was particularly alarmed at the decline in cultivation of wheat and other cereals in Britain, which had followed from the great increase in cheap grain, mainly from new lands overseas (Crookes[4]). He pointed out that the number of bread-eaters in the world was increasing at an alarming pace: that the *per capita* consumption was increasing: that the harvest of 1897-1898 was a bad one and all reserves were likely to be exhausted. He went on to estimate that "within a generation, the ever-increasing population of the U.S.A. will consume all the wheat grown within its borders, and will be driven to import". Russia, at that time the next exporter, was an uncertain quantity; Canada, which then grew about 3,000,000 acres, could not reach more than 12,000,000 acres in the next quarter of a century. His comments on Australia are of special interest to us. While quoting a statement from an authority that Queensland had 50,000,000 acres suitable for wheat, he drily remarked that hitherto it had never had more than 150,000 acres under crop. He misses New South Wales and remarks: "For the second season in succession the wheat crop last year was destroyed over large areas in Victoria; and in South Australia the harvest averaged not more than about 3¾ bushels per acre . . . . In most other districts the yield fails to such an extent as to cause Europeans to wonder why the pursuit of wheat-raising is continued."

Crookes was greatly impressed by the nitrogen aspect of the wheat problem. He considered that this was the key to the whole situation; there was not enough guano; supplies of sodium nitrate were limited, and in the long run it would not be practicable to maintain yields without the use of increasing amounts of nitrogenous fertilizer which, so far, had not been synthesized in any quantity.

Plant Breeders and Chemists Upset Crookes's Forecast.

Crookes, as a physicist, had failed to realize the capacity of the plant breeders to provide new races of plants more suited to the new environments into which agriculture had spread and was spreading. In Australia, Farrer was at work when Crookes spoke. More sensational still was the work of Saunders and his successors in Canada, who provided types of wheat with shorter and shorter growing periods, so that the wheat belt could be extended into regions where the last spring frost was later and the first one of autumn was earlier, than in the older districts. These activities falsified completely the estimates which Crookes made of future potential production in the United States of America, Canada, Australia and the Argentine. Later still, the American workers, after a quarter of a century of research, discovered means of producing hybrid maize seed with a capacity of increasing the maize yield by about 30%—and in the United States of America that means nearly an extra thousand million bushels. Nor need Crookes have worried about the world's supply of combined nitrogen, for the Haber process, invented in Germany about fifteen years after he spoke, overcame that difficulty. For these reasons it fell out that 1931, the very year which Crookes forecast as likely to be one of general starvation, was one in which farmers were obtaining miserable prices for their products because supplies of farm products greatly exceeded the world's capacity to buy them.

The First World War led to a considerable increase in the facilities available for international transport. More important still, it made more people think internationally. Nowadays it is fashionable to deride the old League of Nations as a waste of time and money. Its greatest critics must, however, admit that as a result of its various

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activities the number of people in the western world prepared to take an interest in international problems was increased. Whether their thoughts were wise or well directed is neither here nor there. They did try to think. Standards of living in various countries were readily discussed and comparisons made. As a result of these thoughts food supplies were more frequently discussed on a global basis.

International Interest in Nutrition Problems, 1936.

The great depression of the 1930's reduced the majority of farmers in all the exporting countries to the verge of ruin, because the world had failed to develop an economic system by which the surplus of various kinds of food, particularly cereal grains, could be consumed by countries which had need to import them. The thoughts of Professor (afterwards Lord) Boyd Orr,[5] combined with the economic drive of Mr. F. L. McDougall, of Australia House, and the political acumen of Lord Bruce, focused world attention on the paradox of want in a world of plenty. The underlying motives of the campaign were, on the one hand, the removal of the agricultural dilemma of the exporting countries and, on the other, the raising of the nutrition of the depressed sections of humanity throughout the world.

The first need was the accumulation of the facts of the nutritional status in each country. Many investigations were carried out. Extensive inquiries were made by the Commonwealth Nutrition Advisory Council.[6] Similar inquiries were made in many other countries.[7] The net result of all this inquiry was the emergence of a widespread interest in nutrition, not only by the individual as regards himself, but also in respect to others of his nation and, further still, of the world at large. Practical steps were taken by some governments to improve the nutrition of sections of their people, and in one or two instances international action also took place. The United States gave several thousand tons of wheat to China to alleviate a famine which was raging in certain districts. The wheat was shipped to the coastal ports, and American officials were sent over to supervise its distribution. Their experiences were illuminating, for they soon found that the problem was not so simple as it had seemed at first sight. In the first place, the transport of the grain to the afflicted districts was costly—partly owing to the crude methods of handling and partly owing to the series of levies which had to be met as the grain passed through each administrative district. Secondly, the arrival of fresh grain menaced the vested interests of the local trade. Bringing the grain to the sufferers for whom it was intended proved a costly affair. The lesson was that the introduction of charity into a widespread system which is economically balanced in respect to its dependent local market is not an easy matter.

The Atlantic Charter, United Nations Organization and its Offspring Food and Agriculture Organization.

The Second World War brought many changes in both the volumes and sources of supply of the food of many countries, but more important still was one of the changes which it engendered in the outlook of many people. The adoption of the Atlantic Charter, in which the political leaders of the United States of America and Britain sought to frame a series of desirable possibilities for the world when freed from the threat of Hitlerism, necessarily raised many questions of supply. The Allied Governments began forthwith to call conferences with the object of framing schemes under which the accepted principles could be put into effect in a post-war world. Prominent among these conferences was that held at Hot Springs, Virginia, in 1943.[8] Its numerous resolutions were aimed at bringing about agricultural reforms and increasing world food production, so that mankind as a whole could attain a higher standard of living and be freed from want. These resolutions show clearly the influences of the old League of Nations campaigns in favour of better nutrition. At the same time they indicate that the delegates were fully aware of the wide range of factors which governs successful agricultural production. They refer not only to the need for intensifying agriculture through the wider application of scientific discoveries, but are firm when referring to erosion control and to the need for more irrigation, for more rural education and for reform in such matters as land tenures and systems of credit.

The well-known Food and Agriculture Organization (F.A.O.) emerged as the administrative body under the United Nations Organization charged with the task of bringing these ideas to fruition. This organization, under the leadership of Lord Boyd Orr, has repeatedly emphasized the global shortage of food, and the deficiencies which must be made good if all nations are to enjoy an adequate diet. As a result, the significance of the world food position in relation to increasing world population is nowadays understood by a larger percentage of the western world than at the time of either Malthus or Crookes, or in fact at any other time.

The World Food Position Today.

The food situation in 1952 is probably no worse than it was, for instance, in 1900. It is true that in some respects Britain is no longer "a land of plenty", but there is no evidence of inadequacy in the diet; probably she has fewer people with inadequate nutrition in 1952 than she had in 1939. The same is less certain of Asiatic countries, where starvation still occurs locally when crops fail and accessory supplies are not available, and where the diet of large sections of the populace is not sufficiently balanced to maintain fitness and full health. But I must again emphasize that such shortcomings have been normal for centuries in these countries and, further, that the dominant sections of their society are often not very anxious for any change. We are apt to look at the matter from a humanitarian standpoint, often ultimately based on the broader appreciation of Christian principles which developed slowly during the last century. We sometimes forget that this attitude is less in evidence in some Asiatic communities.

Since 1948 food supplies have generally met the demand, thanks, first, to the great post-war efforts by the farmers and the technical agriculturists in North America, in Britain and other countries of Western Europe, and in New Zealand, and secondly, in most countries to the adoption of food price policies which have been attractive to farmers.

As a result of the analysis of the situation presented by F.A.O. and its parent body, U.N.O.,[1] many thoughtful minds today are asking whether the world food problem is capable of solution. Some publicists are boldly stating that it is not. I must again point out that it has two parts: first, the problem of raising the nutritional standards of large portions of many populations to a level which will ensure fitness and, secondly, the problem of increasing the supply so as to take care of population increases. It is safe to say that both of these desirable ends certainly cannot be attained tomorrow, or in the next decade, because the extra production required would be too great. But no one, even in the food-deficient countries, expects that such a change can be brought about at short notice. Least of all do those on the fringe of starvation expect it, for they have lived all their lives under conditions in which the unfortunate have always been so situated.

Population Data.

I do not propose to weary you with a detailed survey of the growth of populations or the trends which it shows. Some reference to the matter is, however, essential if the size of the problem is to be indicated. Table I shows the populations of certain countries in 1950 and the percentage increase which this indicates during the preceding half-century.[9]

The increases shown in the second column are partly due to the numbers born in excess of those required to maintain the population and partly to an increased expectation of life brought about by better sanitation and more efficient medical skill, while in some cases migration has been an

[1] For example, a statement by Mr. Trygve Lie, President of U.N.O. in Washington, to the effect that in the next generation food will be required for between 600,000,000 and 1,000,000,000 extra people.

important factor. The figures are important in that they show the extent to which populations have increased during the half-century, and therefore the extent to which the problem has been more or less successfully met.

We are more interested in the problem of the future. In any such consideration the reproductive rate in each country is of significance, although in some the speed with which health services raise the expectation of life during the next few years may be even more significant. This latter point, however, is beyond my powers of estimation. Clearly, improved sanitation and more care in infant feeding could alter the figures profoundly in some countries if the population was prepared to adopt the changes required by social reforms. How long an interval is necessary for such changes to be brought about is the crucial question which some of you are better able to answer than I.

TABLE I.[1]

Country.	Population in 1950. (Millions.)	Increase Since 1900 as Percentage.	Age to Which Half Female Population Survived.	
			(About 1900.)	(About 1940.)
United States of America	150·7	98	56	73
United Kingdom ..	50·6	31	65	76
France	41·9	10	59	75
Italy	46·3	44	55	69
Denmark	4·3	77[2]	67	73
India	358·0	61[2]	14	23 (1931)
Ceylon	7·5	127	—	—
Egypt	20·2[2]	96[2]	—	—

[1] From "Demographic Year Book", 1951, U.N.O.

[2] Partly based on estimates.

The other factor—the reproductive rate—is also somewhat elusive, as the data of population over the last few decades show that it has changed considerably in some countries, while in others the figures are unreliable. Gross birth rates are not very suitable for these studies; the net reproductive rate[1] is more effective for the purpose. Table II shows the result at various dates for various countries.

Although reliable figures for the eighteenth century are not generally available, it is known that the rate at that time was higher than during the early decades of the nineteenth. This decline continued until the Second World War, since when the net reproductive rates of the United States of America and most European countries and Australia have reversed their downward trend and begun to increase. Figures for Asiatic countries are not available, but as a result of discussions with Indian statisticians Mr. Colin Clark[(11)] is of the opinion that the Indian population has ceased its rapid expansion and that families are now smaller. He further states that the Chinese population has not been increasing for some time. For both these countries, however, the results of improved health services can be enormous. It seems clear that the population in Europe, America and Asia is certain to increase, although perhaps not at the rate at which the gloomier prophets imagine.

Table III gives some idea of the magnitude of the numbers involved. It shows the population increases during the decade ending 1949, by continents, and the estimated population in that year. The average annual increase in that decade was thus 18,300,000—about twice the present population of Australia. Whether the rate in 1952 is rather higher or rather lower I do not know, and whether it will increase or decrease in the future is also uncertain; but that is the order of the numbers which set the problem at the moment.

[1] The "net reproductive rate" is the number of live female births per woman of child-bearing age, multiplied by the proportion which live to child-bearing age ("Demographic Year Book, 1949-50", U.N.O.).

Grouping of Methods for Increasing Food Production.

For convenience we may group the methods by which food supply can be increased in volume under three headings. The problem of improving the quality of the food where necessary is merely an extension of the same general problem. The three headings are as follows: (i) in all countries by bringing into use land which has been too poor or too difficult to use in the past; (ii) in food-importing countries by improving production per acre; (iii) in food-exporting countries by improving production per acre on the areas already used for farming. Of these three, the last two are usually the same problem, but economically (and politically) the background is different.

TABLE II.

Country.	1920	1930	1935	1940	1950 (or Nearest).
United States of of America ..	—	1·09	0·97	1·02	1·46
United Kingdom	1·26	0·84	0·76	0·77	1·07
France ..	0·98	0·93	0·87	0·82	1·31
Italy	—	—	1·13	—	—
Denmark ..	—	0·95	0·92	0·98	1·27
Australia ..	1·31	1·13	0·95	1·02	1·33

The methods which prevented the disaster in the century following Malthus fell under the second and (subsequently) the first groups. Crookes saw the end of new sources of food, but under-estimated the capacity of the scientists, especially the plant breeders, to bring further large areas within the range of effective production. Can the scientists of this generation continue the process?

New Land for Farming.

The first group of methods requires careful consideration. In almost every country there are areas of upland, or health, or swamp, or jungle, which have defied the attempts at settlement made by the local people. The wetter parts of Australia abound with examples of these. Every State can produce them, and their total acreage runs into tens of millions. In most cases it is a question of soil poverty; in others some special problem of clearing the bush or forest is an additional complication. Occasionally the land needs draining, and in some places the lack of cheap transport is a handicap. Instances are the coastal tract between Orbost and Eden, the scheme of the Australian Mutual Provident Society on the South Australian border, and the thousands of acres which Western Australia is bringing into use annually. Queensland has scarcely touched the poorer soils of her littoral zone. In Britain, examples are the upland moors and rough grazings of many areas in the north and west, and some of the poor heaths in the east; in India, the jungles of the foothills and various areas of potentially irrigable land. In other countries of south-east Asia similar tracts occur. In Ceylon, the dry plains of the malaria-devastated north are now being put to use again after centuries of abandonment.

The one thing which all these areas have in common, whether they occur in Australia, Britain or Asia, is that the past struggles of potential settlers to turn them into farm lands were failures. They could not clear them and make them sufficiently productive to make a living—and "making a living" often did not imply much of a standard. This implies that if the settlers had had more knowledge, or more resources, they might have succeeded; or, secondly, that the price of foodstuffs relative to those expenditures which go to make the "standard of living" in the country was too low. If the produce of these marginal farms had been worth more in terms of other commodities, the settlers would in some cases have made a living; whereas, prices being as low as they were, they failed to do so.

Now the last twenty years have seen very significant advances in our knowledge of effective methods of making many soils, previously infertile, productive. These advances

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have been in respect to the importance of traces of copper, zinc, molybdenum, cobalt, and other elements in the nutrition of plants and/or animals. Rapid methods of clearing, suitable for light land, have also been devised. It seems clear that in most countries there is a large but somewhat indefinite potential for increasing the area of productive farm land. However, it is equally certain that, in most if not all cases, these new sources of production can be successfully developed only if the prices of foodstuffs are generally higher in relation to other commodities than they often were during the long period from 1870 to 1940, to which I have already referred.

TABLE III.[1]

Continent.	Population 1949.	Increase Since 1939.
Africa	198,000,000	23,000,000
America	321,000,000	47,000,000
Asia	1,254,000,000	92,000,000
Europe	593,000,000	20,000,000
Oceania	12,000,000	1,000,000
Total	2,378,000,000	183,000,000

[1] From "Demographic Year Book", 1951, U.N.O.

More Food by Increasing Production per Acre in Food-Importing Countries.

The second method of increasing the availability of food in the world is by improving production on land already farmed in countries where shortages occur. The possibility of this is considerable, but naturally it varies from one land to another. Although the effectiveness of the agriculture of any country depends primarily on the soils and climate, yet the efficiency of the farmers and their technical knowledge, the size of farms, the systems of tenure, and the availability of capital are also very significant factors. Britain is a particularly interesting case. Her legislature has steadily tackled the problems of land ownership, but the size of many of the farm units and their shapes still leave much to be desired (Hall[12]). As soon as she departed from the cheap food policy which ruled her development during the century ending in 1938, her farmers were able to increase production considerably. Under the guaranteed price system coupled with assistance to purchase equipment through taxation allowances, agriculture has been revitalized. Experts are of the opinion that still greater improvement is practicable, probably through more attention to soil problems and especially to deficiencies of trace elements.

Most other countries in Western Europe are more or less in the same position, although some, such as France, are self-sufficient in most agricultural products, while others, such as Spain and Italy, have more variable climates and are heavy importers in some seasons. The problems which have to be faced before production can be raised are partly scientific and educational, but are often due to antiquated systems of land tenure or to the fragmentation of holdings consequent upon the inheritance system.

In most cases the price of the commodity is important, for extra volumes of production will become more readily available only if the price level of foodstuffs increases in relation to that of other goods. If we look at the position with the perspective of history, if the world food problem is to be solved, then the era of cheap food is over, and those of us who have lived in it must alter our scale of values, giving food a higher rank in the yearly budget. Would it be socially shattering if, for instance, two pounds of beef steak, instead of costing the price of a seat at an evening picture show, as it did before the war, in future cost the price of four such seats? Or would we be destroyed if the weekly milk bill rose so much that female adornment and changes of costume had to be less frequent, or more time was spent in the garden and less on organized sport?

The Problem in Asiatic Countries is Largely Social.

In many cases the practicability of effecting much improvement is governed by lack of reforms of the type which Britain adopted two centuries ago. External critics may deplore this state of affairs and suggest that the governments concerned or the United Nations are failing to produce results; but in fairness to such bodies it is well to remember certain factors. First, it is to be remembered that the masses of the populations concerned are but little more advanced in thought and education than those of Britain in the eighteenth century. Secondly, in those far-off days governments were more autocratic and could often enforce changes. Today, in one of these new democracies a progressive political party struggling to maintain its prestige internally is likely to find that opposition to proposals for the amendment of a system of land tenure or inheritance is fertile ground for political aspirants. Thirdly, some of the systems which need radical alteration are associated with religious practices and beliefs. Clearly, reform must be slow, and can come only from within. Its speed must largely depend on the extent of literacy in the population and on the degree with which the youth of the country is convinced of the need for the change. If we assume that the literacy factor in south-east Asia today is about the same as it was in England in the eighteenth century, then, as it took the latter country a century or more to bring about reform in these matters, we may expect the same period to be necessary for comparable changes in Asiatic countries. The only reasons why the period can be shorter are, first, the store of knowledge and techniques which western countries have accumulated about basic principles of land use in the last half-century, and secondly, the readiness of Asiatic youth to avail itself of that knowledge. Clearly, the larger the numbers of Asiatic students who can be brought into touch with modern agricultural ideas, the better, always provided that they are carefully selected, properly supervised during their training, and effectively used on their return to their respective homelands. If the scheme should fail in respect of any one of these criteria, it could do more harm than good, because the eastern student who fails after he returns home is apt to drift into the rapids of political extremism.

It is satisfactory to realize that leaders of thought both in the United Nations Organization and in many other countries have recognized that increase in agricultural production is largely a matter of social reform—apart from such assistance as engineers can give through technical assistance in the development of their irrigation projects or by training their young nationals in modern scientific methods. The Colombo Plan[13] is probably the best example of a long-range scheme of this kind. It provides a six-year programme under which nearly £2,000,000,000 is to be provided for the development of the participating countries. Development will be agricultural and industrial, but the improvement of transport and communications is an important section, and many irrigation schemes and others for land drainage are included. Rather over one-sixth of the total will be spent on social services. The expected increase in agricultural production is 7,000,000 tons of food grains a year. This will do no more than hold the present position as regards food supply. Further improvement in south-east Asia is dependent on the development of increased areas in Indo-China and Siam and on the social reorganization already mentioned.

Among the British Crown Colonies there are plans for increasing the supply of trained personnel, and others for extension and for research into many of the barriers which stand in the way of agricultural progress.[1] Investigations into tse-tse fly, malaria control, the problems of cotton, rubber and tea are examples of these. Actual rural reconstruction is in progress in some areas.[2] In marked contrast

[1] Annual reports of the Colonial Office under the title "Colonial Research" *et cetera* give details of the large amounts of work being done.

[2] There are numerous examples—for instance, "Kigezi Resettlement", by J. W. Purseglove, in *The Uganda Journal*, Volume XIV, Number 2, or "The Development, Expansion and Rehabilitation of Jukumand", by N. V. Rounce, "East African Annual, 1947-48".

to the method of improving and extending native agriculture are the activities of the British Overseas Food Corporation, with its schemes for the rapid creation of new productive industries—for example, the peanut scheme and the poultry scheme in Gambia, which have run into many troubles common to developmental projects in any new territory, and especially to those using machinery on the grand scale.

More Food by Increasing Production in Exporting Countries.

The United States has made a spectacular advance in production during the last fifteen years. This was partly due to the wider application of the results of the scientific research of the previous thirty years and partly to the price policy of the Government, which encouraged farmers to develop and equip their farms. The farm advisory service of "Country Agents" devised to raise the standard of farming and farm life is a model to the world—albeit expensive by our parsimonious standards. Despite these achievements, it would still be quite incorrect to suggest, as Crookes did half a century ago, that farm production in the United States of America had reached its peak. Progress has been uneven in the various States, and there is a very considerable problem of ownership.[(15)] Australian farming has begun only during the last thirty years to emerge from the exploitative stage of the pioneers. As long as there was more land of quality available in areas of reasonable rainfall, it was more attractive—and usually more profitable—to acquire some of it and exploit its virgin fertility than to intensify production on the older areas. Apart from this economic circumstance stands the truth that this country has few and limited areas of high fertility, while in many regions the profitability of raising soil fertility was not marked. Even the methods by which this process could be achieved were not always known, although progress has been rapid in recent years.

Great publicity has been given to the slow rate of increase of production in Australian agriculture since 1940; but this state of affairs is the perfectly logical result of government policy, first in diverting materials and labour to the development of secondary industries and capital works (Wadham[(16)]), and secondly, in preventing the prices of most farm products from rising to world parity. The reason for the latter has doubtless been the political desire to keep down food prices so as to check the rise in the basic wage, but the result has been to prevent price from playing its part in stimulating more production, a function which is fundamental in the operation of a free economy.

Now that the Government has appreciated the position and has begun to reverse its policy towards agriculture, the rate of increase of farm production may be accelerated; but it will not be a rapid process, because changes in farming are necessarily slow and cannot be brought about without the provision of considerable amounts of material which require the investment of capital. However, the possibility of increasing production—probably by over 20% in a decade—exists. Such a possibility is largely dependent on the relative price levels of farm products and other commodities. In other words, the world can have more food from Australia, but it must expect to pay more for it, both in terms of currency and in the absolute sense. Nor can any such project succeed unless the appropriate capital is available. The necessary steps would also have to be taken to expound the scheme and assist with the planning on the individual farm.

What I have said about the prospects for increasing production in the United States of America and Australia applies equally well to Canada, the Argentine and most other exporting countries. The first step in increasing production is, in most cases, one of raising soil fertility, to which I referred when dealing with increasing production by bringing in new land. It may well be that the agricultural historian of the future will describe the present decade as the opening phase of the era of the practical application of soil chemistry.

Taking a broad view, it seems reasonable to me to suggest that if Asiatic birth rates are not increasing, and if it takes some years to improve the health precautions in those countries so that expectation of life does not increase very rapidly, the food situation can be held for some decades at its present position and even improved, provided war on the grand scale can be avoided, and also provided that governments continue to stimulate increased production and that people generally are prepared to pay relatively more for food in the future than in the past. Not one of these premises is a certainty, for they all depend on the extent to which the people of many nations accept a measure of sacrifice in the interests of giving world order a better chance of survival. In this the Government of the United States of America has, in recent years, set an example unparalleled in world history; but it does not follow that future governments of that country will continue that policy, or that other nations will copy it.

Australia's Food Export Policy.

Some people think Australia should set about to produce more and more food in response to world demand, even at the expense of other developments. While I agree that we should do our share in meeting world food need, I entirely disagree that we should believe that this Commonwealth is the potential granary of south-east Asia, first because we have not the capacity to play any such part—our areas with appropriate soil, terrain and climate are far too limited—and secondly, it is economically a mistake for any country to have too high a ratio of export to home consumption in any commodity. Industries in that position are far too vulnerable to economic pressures against which they cannot be defended. For instance, before the war we normally exported about three times as much wheat as we consumed locally; the result was that the nation could not afford to support its wheat growers extensively when price collapse occurred. It may be argued that price collapse cannot occur when world shortage is imminent; but one must remember that these are days of international bargaining between governments, and the position might arise in which not-so-friendly powers might exert strong economic pressures in matters of this kind.[1] A third reason why we should not increase our export of grain is that unless Asia can produce more commodities which the rest of the world needs, and is prepared to buy from such sources, great difficulties will arise with regard to the means for paying for these imports. As a nation with a doubtful balance of overseas payments, we are not able to make gifts to overseas countries in the same way that the United States of America can. It is as well to remember that this State of Victoria, by a badly balanced expansion of its wheat areas in the 1920's, met financial disaster in the 1930's. That is one reason why our schools and other social services are so poorly equipped today. Finally, it would scarcely be advisable for a position to develop in which large sections of Asia regarded Australia as their natural major source of food. Our function seems to me to have more grain for export than we have had in recent years and to expect to send it to the wide range of countries into which we traded it in pre-war years, especially in such seasons as they had a shortage due to some temporary difficulty or disaster.

This brings me back to the suggestion made earlier, to the effect that we should agree with the Indian view that they and the countries of south-eastern Asia should be able to support themselves in foodstuffs by reforming their own rural social system and developing new techniques rather than by depending on imported foodstuffs—with the exception of drought years.

[1] The wool industry might be cited as a case in which we have for many years exported more than we have used locally without disaster; but then our costs of producing wool are far lower than those of most countries, and our production is a large proportion of the world's wool supply. Up to the present it has not been practicable for any country which wanted wool to avoid coming to us to get it, so that when once its reserve stocks were exhausted it had to turn to the Australian product. In wool alone do our climate and natural resources fit us to defy competition.

The Long-Term Position.

From what I have said it will, I hope, be evident that increased food can be produced in many countries either by using new land or by improving the efficiency of use of old land, and in these ways I believe the situation can be met for the time being, despite increasing aggregate world population. It will, however, be noted that this can be done only at higher relative levels of cost than have existed in the past for food products. As each new area is brought in we may reasonably expect that the economics of the next will be slightly more difficult than that of its predecessors. Clearly, therefore, if birth rates continue at their present high level, the time will eventually come when the extra food required cannot be provided at any reasonable price. However, we know that birth rates have changed from time to time in various countries in the past, and there is no reason to suppose that under better conditions of living in some of the countries where birth rates are high at present a substantial decline may not occur. The matter is one for sociological study, and it is interesting that in its five-year plan the Government of India has agreed that birth control is a desirable policy.

If such changes do not take place, then the world will be forced to look to the scientist for some new means of overcoming the problem of nutrition. Given sufficient time, there is no reason to suppose that such a search would be made in vain. Let me give three instances of current scientific research which could make a great contribution. First, the study of the mechanisms of clouds in relation to rain may, in the long run, yield a positive result. It is interesting that the amount of rain which would have to be produced in south-eastern Australia to quadruple the effective wheat belt is small. Effective rain stimulation which could be sure of producing another inch or so of rain, when wanted, in May and a similar amount in September would make wheat-growing in the northern Mallee and many other marginal districts of similar climate a sound proposition, instead of a gamble on the climate with the odds against the farmer. Clearly we do not know enough about clouds, or about ways in which they can be modified; but we know much more than we did. Secondly, Australia and some other countries afflicted with low rainfall have large tracts of country on which enormous quantities of solar energy fall. This energy might be used in synthesizing carbohydrate other than by flowering plants; but investigations are only in their infancy, and there is no reason why the difficulties which they have disclosed should not be overcome. Thirdly, protein can be synthesized by yeasts and certain other organisms under certain conditions, although the product is somewhat expensive, judged by pre-war standards.

These last two possibilities might bring in large extra supplies of some entirely new forms of foodstuffs which would have all the nutritive qualities of those which we now use. They would doubtless be socially unacceptable to many communities at first, in the same way that margarine was to the people of Great Britain for many years until it was produced in forms virtually indistinguishable from butter. The widespread acceptance of any new form of food demands the destruction of previous concepts—it is a sociological problem.

Conclusion: The Need for Increased Activity on the Sociological Front.

In conclusion, I hope it is obvious that every solution of the problem which I have examined has sociological barriers of one kind or another which may be far more difficult to surmount than the mere technical barriers which the scientist has to overcome in his endeavours to assist the agriculturist. Thus, in the Asian countries where food needs are likely to be present in greatest intensity, problems of land ownership, religious taboos and the lack of mass education are the great barriers at the present time. In all countries some alteration in the relative price levels of foods and of other commodities is essential, if more production is to be attained. This is, or will be, a real social problem in all countries. In those which import foodstuffs the change may reasonably be expected to occur more readily than in those which export foods. The important point is that this change should be understood as a part of the solution of the world food problem. Finally, an objective attitude must be developed towards new foods of different origins and different type from those to which we are used. This in itself is a sociological problem, I suppose, in the department of mass psychology.

Such thoughts and conclusions emphasize once again the importance of furthering the study of social sciences, especially in their more practical fields. This point has been made many times by many people in recent years. But progress is slow. The progress made in each decade by physical and biological science is now little short of sensational. Progress in the study of people, their reactions and how best they may be influenced seems to be slower. We are little nearer than the old man's advice to his son on propaganda: "If you would influence public opinion, then do not begin by insulting it; secondly, do not let it catch you at it; and thirdly, come down off that wall."

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UPPER ABDOMINAL PAIN IN GENERAL PRACTICE.[1]

By C. Yeatman,
Adelaide.

About one hundred years ago Dr. John Brown, of Edinburgh, a general practitioner, in an address to medical students entitled "'ΑΓΧΙΝΟΙΑ: Nearness of the *Noûs*—Presence of Mind; 'ΕΤΣΤΟΧΙΑ: Happy Guessing", wrote as follows:

> Dr. Chalmers used to say that in the dynamics of human affairs two qualities were necessary for greatness—Power and Promptitude.
>
> We must all feel the common sense of this, and can see how it applies to a general in the field, to a pilot in a storm, to a fencer, to a debater. It is the same with an operating surgeon at all times and may be at any time with the practitioner of the art of healing. He must be ready for what are called emergencies; he must have Power and Promptitude.

Dr. Brown proceeds to point out that that wonderful old Greek, Aristotle, used two words to express much the same thought—namely, "'ΑΓΧΙΝΟΙΑ", which he translates as

[1] Read at a meeting of the South Australian Branch of the British Medical Association on July 31, 1952.

"nearness of the νοῦς", equivalent to practical common sense, and "'ΕΤΣΤΟΧΙΑ", or happy guessing, the more literal meaning being a successful hitting of the mark. We, as general practitioners, have need of knowledge, experience, nearness of mind and, on occasion, the inspired guess; but we have nowadays modern weapons in our hands, particularly in the diagnostic aids afforded by radiology and clinical pathology, in the utilization of which we must be alert, for, as I shall endeavour to show, there are many morbid conditions in the upper part of the abdomen which cannot be assessed adequately without their aids.

The field of the general practitioner is very wide indeed, impinging on that of almost every specialist, but is further enlarged by the very important and dominant fact that it includes what I believe means so much to a patient and his doctor—namely, the patient-doctor relationship. It is the general practitioner who sees illness in all its forms first, often in its earliest stages, and follows the sick person through that illness and perhaps many others. He knows and sees other members of the family, the home, the social background, the office, the factory, the ramifications of complicated industrial plants, or the living and working conditions of farms and orchards. He may be the only practitioner in a country town or district and find it impossible at times to call on rapid and efficient help to support him in emergency: his power and promptitude may be put to the test at any hour of the day or night, and in no conditions perhaps more urgent than in acute painful lesions of the upper part of the abdomen, necessitating immediate decision and action.

After much thought I have decided to confine my remarks on painful episodes in the upper part of the abdomen to a limited number of visceral pathological causes, and I hope that brief descriptions of nosological entities will interest you more than the listing of all possible conditions characterized by pain in this area. Nor do I propose to expatiate upon the welter of psychogenic, somatic and visceral pains, their tricks and their manners, except in so far as these concern us in the conditions dealt with this evening.

John Hilton in "Rest and Pain" wrote: "Every pain has its distinct and pregnant signification if we will but carefully search for it". "Carefully search" are the operative words in this dictum.

It is the early recognition of the nature, the gravity and urgency of his illness, when a patient is examined, that is the special responsibility of the general or family practitioner, be it an attack of biliary colic, cholecystitis, intussusception, perforated ulcer, acute appendicitis; and though he may have little difficulty in general in knowing how to deal with the patient and his pain, instances will occur to ensure a proper humility.

I propose, therefore, to discuss only a few conditions causing pain in the upper part of the abdomen, and to precede this discussion by the presentation of a few clinical histories as simply and briefly as I can.

Reports of Cases.

CASE I.—I was called in the early morning to examine Mr. G., aged sixty-seven years, a retired business man. He had had an attack of pain some four months previously and had consulted a cardiologist, who had told him that he had an obstruction in one of the arteries of his heart and had advised him as to his mode of living. On the previous evening, after supper, he had been seized with severe pain in the upper part of the abdomen, extending round to the back on the right side, and had vomited. The pain and vomiting continued all night.

When examined, he presented signs of acute cholecystitis, and in addition appeared to be very ill and in considerable shock. The pain and vomiting continued, and he was admitted to a hospital later in the day. In the next twenty-four hours his condition deteriorated, and the administration of fluid by the intravenous drip method and later gastric suction were started. Next, his abdomen became progressively distended and an X-ray picture was taken. The radiologist's report read as follows: "There is enormous gaseous distension of the colon, particularly the caecum, and as far as can be seen this is extending to the pelvic colon." A barium enema flowed readily to the lower part of the pelvic colon, where there was partial delay and narrowing, though the column eventually reached the splenic flexure. A laparotomy was decided upon. No obstruction was found, but in the region of the gall-bladder and the under-surface of the liver matting and induration were present. After the laparotomy his condition appeared to improve for a few days and then began to deteriorate, with mental clouding and gradually deepening coma to death.

The admission must be made that the diagnosis of acute pancreatitis was not considered in the early stages of his illness, and that the localized paralytic ileus was not recognized for what it was. If a serum amylase or urinary diastase test had been made at the earliest opportunity, I believe an accurate diagnosis would have been made.

CASE II.—Mrs. M., aged forty-eight years, was a school teacher. She was taken ill suddenly one evening with acute upper abdominal pain, and was examined about two hours later. She appeared to have an attack of acute biliary colic. Next morning she was comfortable except for tenderness and guarding in the right hypochondrium. She then gave a history of having had indigestion and hunger pain off and on for about four years, but said that for the previous month the pain occurring some one and a half to two hours after meals had been severe. As milk was readily available at her school, she had obtained much relief by taking some at mid-morning and mid-afternoon. An X-ray film of her gall-bladder showed that it functioned normally, but a barium meal examination revealed evidence of duodenal ulcer, to the treatment for which she responded well, and there has been no repetition of her acute colic.

CASE III.—Mr. L.M.R., aged fifty-eight years, a married man, was examined in May, 1951. For the past four years he had been a mail contractor and before that an orchardist, but he gave that up because he found the work too hard for him. He had served for four and a half years in World War I. In 1915 his appendix was removed. He was slightly gassed in 1918. Seven years before the present examination he had had a large hæmatemesis and melæna with two recurrences, and was in hospital for three months being treated for duodenal ulcer, the presence of which was confirmed radiologically. Subsequently he suffered from indigestion and flatulence and epigastric pain, coming on about one hour after a meal and relieved by alkali and/or milk. Pain often wakened him in the early morning. He had lost about two stone in weight in the previous two years. During the previous four months his indigestion had been worse, with severe epigastric pain extending into the back between the shoulder blades. For three weeks he had vomited slimy, bile-stained fluid almost daily; but this vomiting relieved his pain and discomfort. Eructations and belching occurred after he had taken food or drink of any kind.

On examination of the patient it was obvious that he had lost much weight; his complexion presented a curious tint of dark sallowness, and considerable tenderness was elicited in the epigastrium below the zyphoid appendix. The only other material finding was a hard nodule in his prostate.

The following investigations were carried out. A fractional test meal examination showed that there was no free hydrochloric acid in the resting specimen, but adequate secretion after the meal was given; there was no blood, but an excess of mucus. The fæces gave a strongly positive reaction for occult blood. The amount of 17-ketosteroids in a twenty-four hours specimen of urine, 7·5 milligrammes, was abnormally low. X-ray examination by means of a barium meal revealed no evidence of neoplasm or ulcer in the œsophagus, stomach or duodenum. The tender point was accurately within the duodenal loop when the patient was supine, raising the question of pancreatitis. The diastatic index of the urine was within normal limits. An X-ray examination of the gall-bladder showed that the dye was rather poorly secreted into the gall-bladder and that there was some delay in emptying.

In June, 1951, cholecystectomy was performed. The gall-bladder was filled with black inspissated mucoid bile with masses of soft amorphous mud. The pancreas did not appear to be abnormal. The patient made a rapid and satisfactory recovery from the operation, and in a letter in 1952 he stated that he was back to his old weight and felt very well.

I think that this was a case of relapsing pancreatitis, with coexistent biliary disease, and that the patient is fortunate to have made such a good recovery.

CASE III.—Mrs. T., aged sixty years, was examined in August, 1945, when she complained of shortness of breath on exertion and of tiring easily. She had had some flatulence and discomfort after food. It was obvious that she was anæmic, and her hæmoglobin content was found to be

down to 5·2 grammes *per centum* and her red cell count to 3,680,000 per cubic millimetre; the colour index was 0·53. From this evidence and the examination of stained films it was considered that her anæmia was essentially of the hypochromic, iron-deficiency type. Free hydrochloric acid was present in the gastric contents, and there was a negative response to the test for occult blood in the fæces. There was no evidence of any blood loss. The administration of ferrous sulphate and vitamins, and advice as to her diet brought about great improvement, but she complained still about her indigestion. An X-ray examination was made and the following report was presented: "The gall-bladder fills with dye and fails to empty within three hours after the fat meal, suggesting dyskinesia due to sympathetic stimulation of the sphincter of Oddi."

In April, 1950, she had an attack of severe upper abdominal pain after the midday meal, and vomited. In August, 1950, she was anæmic again, with the same picture as on the previous examination, and immediate improvement with the exhibition of iron; but she continued to have attacks of pain, and another X-ray examination of her gall-bladder was made, with the following report: "There was a normal increased visibility of the gall-bladder after dye and a normal contraction occurred after the fat meal. No evidence of gall-stones detected."

In May, 1951, she had a severe attack of abdominal pain and vomiting while on a visit to Melbourne, and her condition was investigated at Prince Henry's Hospital. She was anæmic. Three tests out of five gave positive results for occult blood in her fæces, and a barium meal examination disclosed a large diaphragmatic hernia. This was operated on there in June, 1951, and now, over a year later, she is not anæmic and her health is good.

I have to make the admission that I had not known of the association between anæmia, upper abdominal symptoms and diaphragmatic hernia.

CASE IV.—My next case report tonight is of J.J.W., a male subject, aged seventy years, an agent and taxation expert, and it affords a typical example of the abnormal œsophageal hiatus and thoracic stomach. He has had symptoms for over ten years of chronic heartburn, intermittent regurgitation, dysphagia and substernal and epigastric pain aggravated by stooping or lying flat. Regurgitation often occurs without warning at the beginning of a meal, bringing relief and enabling him to return to the table and finish without discomfort. He is liable to anginal attacks of precordial pain radiating to the neck and down the left arm, indistinguishable from angina of effort in coronary artery disease; the pain is relieved by glyceryltrinitrate tablets, but produced by stooping or eating rather than by going out to post a letter in the evening or walking up hill. An X-ray report in 1948 was as follows: "There is a short œsophagus with a moderately large thoracic locule of the stomach. Some irregularity of the lower end of the œsophagus and of the thoracic locule was present at times, but not constant, suggesting that it was peristaltic. No evidence of obstruction was present and barium passed freely into the stomach. No evidence of organic disease of stomach or duodenum was detected."

With a soft non-residue diet, alkalis and careful attention to posture he manages to keep moderately comfortable and has not lost weight, although he has been very unhappy and uncomfortable at times with œsophageal spasm, owing probably to mild œsophagitis due to regurgitation. In one of these periods of dysphagia an œsophagoscope passed easily into the locule and no ulcer or stricture was found.

CASE V.—Mrs. F.B.C., aged eighty-two years, was examined first in April, 1941. She complained that she was unable to swallow any food unless she had a drink after each mouthful, and for the previous fortnight she had been "gulping" fluid up into the throat, sometimes into the mouth. From the time when she had her early morning cup of tea until late afternoon, regurgitation of gastric contents was almost continuous, "gulping" and swallowing occurring alternately. When the fluid came up into the mouth and was spat out, there was relief. She had had indigestion for many years.

X-ray examination of the upper part of the alimentary tract disclosed the fact that thoracic stomach was present. After a fortnight's rest in hospital with careful dieting and alkaline powder she was much better, and a note I have of her a year later stated that on the whole she was very well; if she was not careful with her food she had some heartburn and substernal pain, more commonly experienced at night and relieved by sitting up. She finally died, at the age of eighty-nine years, of cerebral thrombosis.

CASE VI.—Many years ago an old man was brought to me by his son. I have forgotten the patient's name and have been unable to find his notes in my records, so have to rely on my memory. He had been "batching" on a small property in the hills and was found there in a weak and emaciated condition. He had been unable to swallow his food for several weeks, the block being at the lower end of the œsophagus. Examination with a barium bolus revealed a stricture at the cardia, and a diagnosis of carcinoma was made. Dr. R. M. Glynn inserted a Souttar's tube, but that did not remain for more than a few hours, and thereafter he was able to swallow soft food. Gradually he took his food more freely, he gained in weight and appearance, and after about three months went back to relatives in the country. I saw him at intervals in the next few years, and as long as he was fed properly he was comfortable.

Discussion.

In acute pancreatitis the importance of early diagnosis is stressed, as the sooner the treatment for this condition is initiated, the more favourable is the outcome likely to be. Diagnosis on clinical grounds is frequently difficult and often impossible. Early diagnosis is possible if use is made of tests for serum amylase and urinary diastase contents during attacks of acute abdominal pain, and it appears that these tests should be carried out also in other less severe attacks of upper abdominal discomfort, the causes of which are obscure.

Even if one is aware of the possibility of acute pancreatitis, confusion arises with other acute abdominal conditions—for example, perforation of a peptic ulcer, intestinal obstruction, mesenteric thrombosis, particularly acute cholecystitis, cardiac infarction when pain is referred to the upper part of the abdomen, and dissecting aortic aneurysm.

So far as localization of the pain in pancreatitis is concerned, the primary site may be in the right, middle or left side of the epigastrium, and from these points it may radiate to various parts of the abdomen, but most often to the thoraco-lumbar region of the back. One can readily understand, therefore, how frequently acute cholecystitis is regarded as the likely cause of the pain in the earliest stages; but apart from localization the pain in acute pancreatitis is usually sudden, occurs after a meal, and lasts longer (seldom less than two days), and the longer duration of sustained pain is regarded as more characteristic of pancreatitis than of cholecystitis or biliary colic. The pain is more prolonged, with severe exacerbations, often so severe that frequent hypodermic injections of morphine are required for relief. In mild attacks the pain is of shorter duration, and there may be a history of previous episodes of upper abdominal distress.

Rigidity and guarding of the upper abdominal muscles may be more to the left than in acute cholecystitis. One must remember that pancreatitis may exist, and indeed frequently does, concurrently with gall-bladder disease, and that the only way of making a correct diagnosis is to make full use of available diagnostic tests of serum and urine.

The cases of hiatus hernia recorded differ in origin, nature, site and symptomatology. The first exemplifies that due to a defect in the diaphragm, herniation being through a patent pleuro-peritoneal canal, through the foramen of Morgagni or through a defect of congenital absence of a portion of the diaphragm. The symptoms are caused by intermittent obstruction due to volvulus or kinking at the level of the duodenum or lower; the stomach is usually the only organ to remain wholly within the abdominal cavity, most of the other viscera lying partly or entirely within the pleural cavity. The flatulent dyspepsia associated with cholecystitis bears some resemblance to the disturbance caused by a hiatus hernia; the two conditions may coexist, but in hiatus hernia the pain is likely to be situated in the epigastrium, in the mid-line, or the lower substernal region, and heartburn is suggestive of it; also jaundice is absent.

The second case is that of the abnormal œsophageal hiatus due to lack of the diaphragmatic pinchcock; whether it is caused by a congenital deficiency of the right crus and the posterior margin of the hiatus or by a defect of the phreno-œsophageal ligament appears to be uncertain.

Pain, epigastric and substernal, is the commonest symptom, even when no œsophagitis is present; but when this

occurs the pain extends through to the back in the midline. Stooping generally aggravates the pain, and the patient finds out for himself that he must sleep propped up to obtain relief. He complains of chronic heartburn and regurgitation. Regurgitation of food soon after eating or without warning at the beginning of a meal may occur, but with relief, so that he is able to return and finish his meal. Another type of pain associated with this type of hernia, and undoubtedly caused by it, resembles the pain of angina. The patient complains of precordial pain or distress, coming on in spasms, radiating to the left or both sides of the neck and down the left arm, and related to the taking of food.

The association of anæmia of the secondary hypochromic type with hiatus hernia is said to be common in infancy and childhood, and if other causes can be excluded, any child suffering from anæmia should be investigated for a hernia. Anæmia is said to be invariably present when there are repeated regurgitation and vomiting due to hiatus hernia in infants and young children.

For the diagnosis of hiatus hernia, the routine employment of the prone, head-low manœuvre during the radiological examination of the upper part of the gastro-intestinal tract should lead to greater accuracy.

What are the symptoms of gastro-œsophageal regurgitation? The first is recurrent burning or tight substernal or high epigastric pain, related not to food but to posture; the pain comes on when the patient lies down or bends forward; therefore it is especially common soon after going to bed or when working bent over, as in housework, such as scrubbing, or in the workshop or garden. Many patients complain of acid regurgitation into the throat and mouth. In most instances discomfort is relieved in a short time by standing up, and it does not occur if the patient avoids lying down or bending forward within a few hours of a meal.

These symptoms may be more or less constantly present for months or years, and when neglected or undiagnosed may lead to complications such as œsophagitis, œsophageal ulcer, spasm or stricture.

The regurgitation syndrome has its own definite pattern then, and appreciation of this fact by clinicians generally will reduce the numbers of cases in which they have diagnosed functional dyspepsia, *globus hystericus* or angina of effort. The diagnosis of functional dyspepsia should be made only when emotional disturbances are present, and when a detailed history and special investigation, including a search for gastro-œsophageal regurgitation, have given negative results.

Conclusion.

Diagnosis on clinical grounds alone of the cause of upper abdominal pain may be correct, or risky, or impossible.

It is the duty of the general practitioner to obtain radiological and pathological assistance. He must use modern weapons. Frequently more than one lesion is present in upper abdominal affections.

As a general practitioner I realize how one is handicapped frequently by social problems, domestic difficulties, high costs involved in numerous and expensive investigations, difficulty in obtaining suitable hospital accommodation, and the situation of the country practitioner remote from expert radiological and other help.

In the years to come, I hope the larger country towns and regional district centres will develop the diagnostic services so necessary for the elucidation not only of the problems more immediately under consideration tonight, but of innumerable others.

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INFECTION OF THE MAXILLA IN RELATION TO MAXILLARY SINUSITIS.[1]

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THE type of infection under discussion is usually referred to in the literature as "dental infection". This term, however, is too narrow and not very accurate, for the following reasons.

1. Every untreated infected tooth ultimately produces infection of the adjacent jaw bone. (*a*) If the pulp of the tooth becomes septic, the bone at the apex of the root becomes infected as soon as the organisms or their toxins pass through the foramina of the root apex. (*b*) In the case of periodontal disease (so-called *pyorrhœa alveolaris*) the infection is outside the tooth from the beginning, the initial lesion being an ulceration of the surface of the gum which is in contact with the tooth. From there infection spreads into the periodontal membrane, and a rarefying osteitis of the bone of the tooth socket follows.

2. Infection may remain in the bone long after all the teeth have been successfully removed. This occurs in the condition known as residual osteitis and in cysts of various types which have become infected.

3. Infection of the jaw bone may follow trauma.

Estimations of the importance of this source of infection in the causation of maxillary sinusitis have varied greatly in the past fifty years. At the early part of the present century some writers expressed the opinion that nearly all cases of antrum infection were caused by infected teeth. Twenty or thirty years later most estimates ranged between 15% and 30%. More recently there has been a tendency to discount the connexion still further, till at the present time most writers either dismiss the subject in a few lines or ignore it altogether. The writer believes that the pendulum has swung much too far in this direction.

It has frequently been his experience, when performing an antrostomy for the recovery of a tooth root which has been forced into the antrum, to find hyperplasia of the lining confined to the floor of the cavity, or in some cases extending to the nasal wall, while the remainder of the lining is of normal appearance. A similar condition has often been observed during repair of oro-antral fistulæ, when it has been possible to view the cavity of the antrum. Both of these conditions, oro-antral fistula and "tooth root in antrum", are usually produced as the unfortunate sequel of a difficult tooth extraction, and the tooth is usually an infected one.

A few years ago it was decided to make a histological study of antral mucosa taken from a number of patients with clinical and/or radiographic evidence of infection of the jaw near the antrum. To date 32 cases have been examined. Three specimens were obtained from a public hospital, where, in the extraction of teeth, part of the jaw bone, including portion of the floor of the antrum with its lining, came away with the tooth. In the remaining cases the specimens were obtained by the following procedure.

A flap of oral muco-periosteum was reflected in order to expose the infected area of jaw bone. The source of the infection was eradicated and the bone curetted. In many cases a defect was found in the antral wall, part of the antral lining being exposed, and a portion of this was taken for biopsy. In ten of the cases the antral wall was found intact and a small window was cut in the bone and a piece of the lining thus exposed removed for biopsy. Some examples of the histological sections made from these specimens are shown (Figures I, II, III, IV).

Of the various classifications of sinusitis, Swinburne's (1951) modification of that of Eggston and Woolf has been

[1] Read at a meeting of the Section of Oto-Rhino-Laryngology, Australasian Medical Congress (British Medical Association), Eighth Session, Melbourne, August 25 to 29, 1952. The paper appears concurrently in *The Dental Journal of Australia.*

found the most satisfactory. He separates simple chronic sinusitis from chronic purulent sinusitis and subdivides the latter into the following types: (i) polypoid, (ii) sclerosing or fibrotic, (iii) glandular or adenomatous, (iv) papillary, (v) atrophic.

If this classification is applied to the cases examined, the type forming about 70% of those examined so far is the sclerosing or fibrotic. In one case the type is glandular or adenomatous, and most of the remainder, from both their history and the histo-pathology, appear to come under the heading of simple chronic sinusitis.

The surprising result of this investigation is that in every patient examined a diseased antral lining has been found and that many patients have shown gross changes.

The only work of a similar nature which a search of the literature has revealed is that of two German investigators, Zange (1932) and Hoepfel (1937). Their work was done on post-mortem material. The original articles in the German literature are not available in this country, but their findings are summarized by Thoma (1944) as follows:

> Both state that in jaws containing infected teeth, inflammatory changes in the membrane of the sinus are much more common than is generally believed. They may also occur when the bony wall of the sinus is intact. Hoepfel states that even if a relatively wide bone layer were present, separating the apex of the infected tooth from the sinus cavity, the membrane of the antrum might still show pathologic changes. Similar changes could be established also in the case of deep periodontal pockets. The marrow of the interposed spongiosa in these cases shows an inflammatory reaction, while the antral mucosa is affected by œdema, round celled infiltration, fibrosis, and cystic degeneration. In other cases the apical destruction included the wall of the sinus, the bony defect either being filled with active or fibrosed granulation tissue, or containing a fistula.

All these statements agree with the writer's findings.

The path of spread of infection from the jaw to the antrum is obvious when a bony defect exists in the antral wall. Spread through an intact antral wall is understandable if we remember that the blood vessels which supply the teeth and the bone surrounding them come down through the wall of the antrum.

Strong (1935) inserted hypodermic needles into tooth sockets, cemented them in with radio-transparent cement, and injected lipiodol under pressure. He radiographed the specimens and reached the following conclusions: (i) The blood vessels on the outer and lateral walls of the antrum form a plexus. (ii) The vessels to the teeth are in the antral mucosa for the first half of their course, and only in the latter half are they in bony canals—sometimes not even that. (iii) The blood supply to the antrum and that to the teeth are inseparable.

These findings may be linked with the work of Okell and Elliott (1935), who found transient bacteriæmia in a large proportion of cases after the extraction of septic teeth, and in a smaller percentage of cases where septic teeth were present after minor degrees of trauma, such as brushing the gums or eating.

If it is allowed that this source of infection is of importance in sinus disease, what can we do about it?

Diagnosis.

A cursory glance around the mouth to see whether any obviously infected teeth are present is totally inadequate. The upper jaw should be carefully examined for less obvious signs and symptoms of infection, such as irregularity of the bone, swelling, tenderness on palpation, expression of pus *et cetera*.

In most cases intraoral radiographs of the posterior part of the maxilla of both sides are absolutely essential. They will disclose the presence of buried root fragments, residual osteitis, cysts *et cetera*, which may defy detection by any other means. Therefore in many cases the cooperation of a competent dental surgeon or a radiologist is necessary from the diagnostic point of view.

Treatment.

The treatment of the jaw infection itself is the province of the dental profession.

1. Extraction of all posterior maxillary teeth with caries involving the pulp should be strongly urged. For many years it has been the opinion of the writer that while root canal treatment may sometimes be permissible for single-rooted teeth, it should never be attempted for multi-rooted teeth—at least until some more satisfactory methods than those of the present day are evolved. The rhinologist should insist on this point of view.

2. The removal of all root fragments, cysts, areas of chronic osteitis *et cetera* is the work of the dentist or oral surgeon, and must be carried out with great thoroughness. The writer is convinced that these operations should always be done under aseptic conditions, preferably in a hospital operating theatre and with adequate antibiotic coverage.

3. Treatment of the sinus requires the following measures. (i) In many cases the removal of the infected area from the maxilla cures the sinusitis without any further treatment. (ii) In some cases it is necessary or desirable to follow it up with one or more antral wash-outs. (iii) Lately the writer has adopted a third method of treatment for cases in which sinus radiographs show much hyperplasia of the sinus floor, and in which a large opening in the bony wall of the antrum already exists. The hyperplastic mucosa of the sinus floor has been stripped out, the remainder of the lining being left intact. In most of the cases in which this plan has been adopted, washing out the sinus has not been necessary and the post-operative course has been particularly good.

Conclusion.

In conclusion, the writer does not wish it to be thought that he believes this type of infection to be the commonest primary cause of maxillary sinusitis. It may not be the main factor in as many as 20% or 30% of cases, but he is convinced that it is the primary cause in some cases of sinusitis and a contributory factor to the chronicity in many others.

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AGRANULAR ADENOMA (SO-CALLED "FŒTAL CELL" ADENOMA) OF THE PITUITARY GLAND: A REVIEW OF THE LITERATURE.

By IRVINE J. HUNTER,

Reginald Maney Lake Research Scholar, Amy Laura Bonamy Scholar, Department of Pathology, University of Sydney.

THE chromophobe cell, the α cell (eosinophile, oxyphile or acidophile cell) and the β cell (basophile cell) are well-known constituents of the *pars anterior* of the pituitary gland, and new growths of all these cell types, as well as mixed tumours composed of more than one cell type, are also well recognized. The pregnancy cells, which are derived from chromophobe cells, may possibly sometimes form true adenomata.

However, there occurs another type of adenoma, which, although defined in 1914 and mentioned in the German text-books, has not been widely recognized in the literature in the English language and appears until 1948 to have found no place in a text-book in English.

ILLUSTRATIONS TO THE ARTICLE BY W. E. FLEMING.

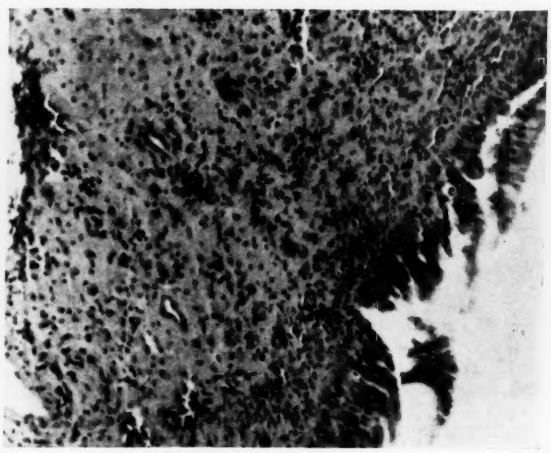


FIGURE I.

Case II: Most of the section shows normal ciliated, pseudo-stratified columnar epithelium. There is considerable infiltration of small round cells, polymorphonuclear leucocytes and a few plasma cells. The blood vessels are engorged and contain abnormal numbers of polymorphonuclear leucocytes.

FIGURE II.

Case V: There is complete destruction of epithelium. Most parts of the section contain numerous small round cells and plasma cells. Many areas show fibrotic changes. Degenerated glandular tissue is also present.

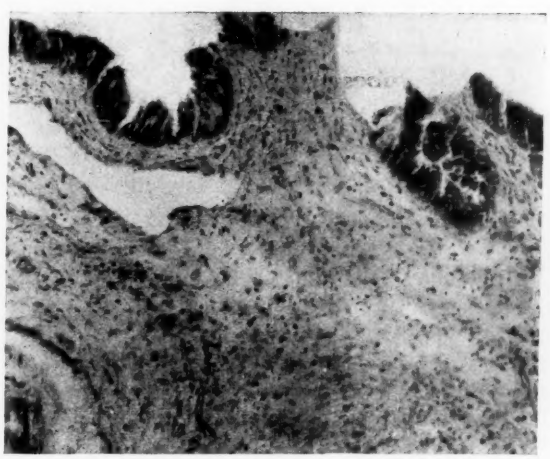


FIGURE III.

Case X: The antral mucosa was grossly thickened. There is extensive fibrosis and a moderate amount of infiltration with small round cells and plasma cells. Most of the blood vessels have thickened walls. In this illustration ciliated pseudo-stratified columnar epithelium is present, but most of the lining has no epithelium.

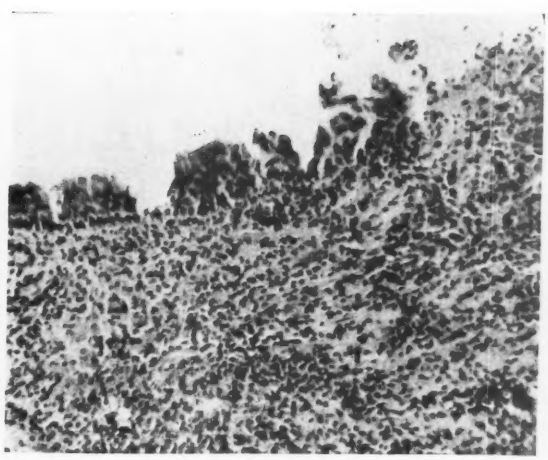


FIGURE IV.

Case XXVII: Most of the epithelial lining has been destroyed. Large areas show a weak connective tissue stroma crowded with small round cells and plasma cells. Other areas not shown in this illustration are made up of fibrous connective tissue with comparatively little cellular infiltration.

ILLUSTRATIONS TO THE ARTICLE BY IRVINE J. HUNTER.

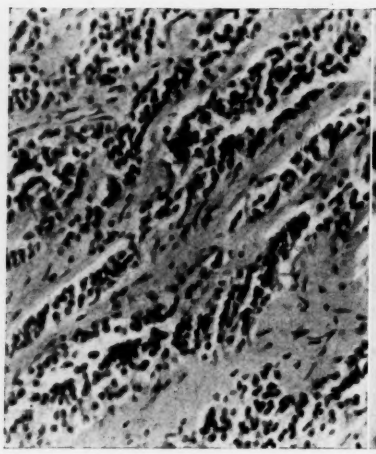


FIGURE I.

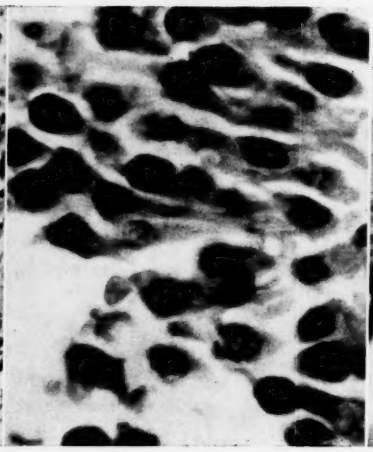
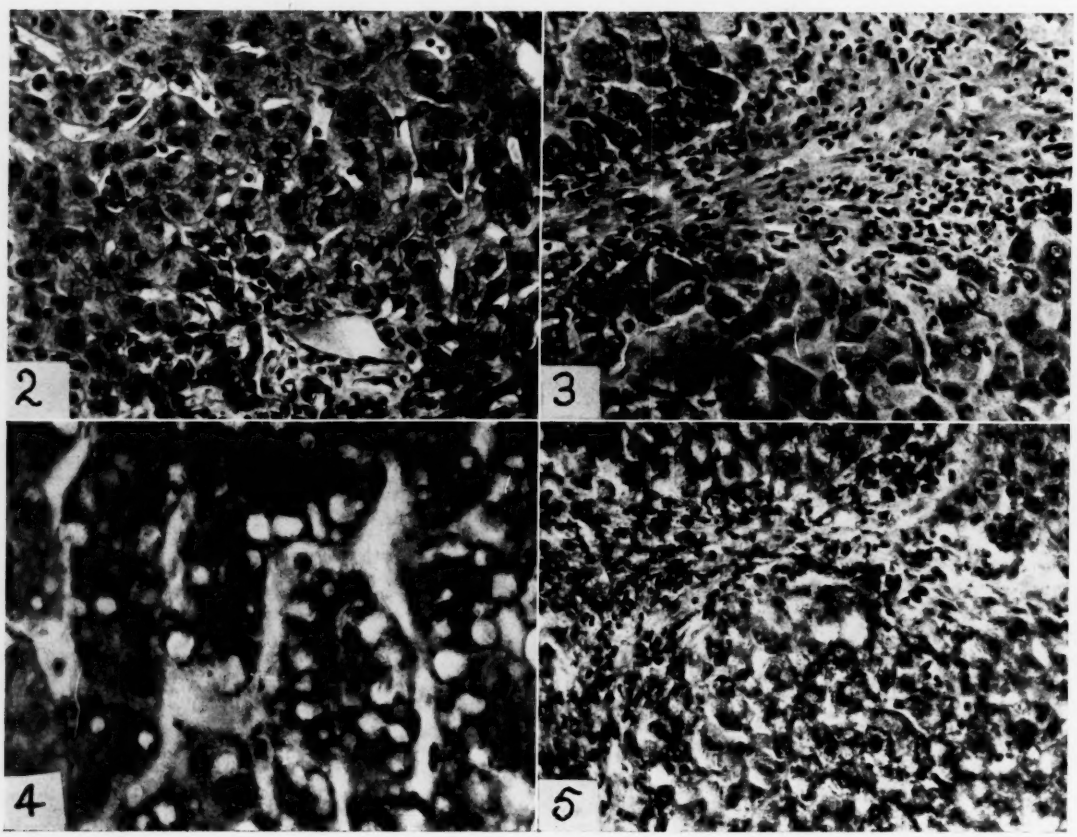


FIGURE II.

FIGURE III.

ILLUSTRATIONS TO THE ARTICLE BY E. G. SAINT AND R. A. JOSKE.



The cells of the anterior lobe of the pituitary are in the earlier stages of development tall and columnar in shape. Cells of similar appearance can be found in the normal adult pituitary gland, but this is not to say that they are in any real physiological or embryological sense "fœtal cells". The function of these columnar cells in the mature gland, whether they give rise to other types of cell as the need arises or have themselves a specific secretory role, is unknown. According to Kraus (1944), they are more prominent in children with *diabetes mellitus*, small groups being found in the lateral parts of the anterior lobe near the capsule.

Eugenia Cooper (1939) stressed that these columnar cells of the developing and of the mature gland, in contradistinction to the chromophobe cells, have an agranular cytoplasm. Under high magnification the cytoplasm of the chromophobe cells in histological sections has a coarsely granular appearance. Many authors, however, because these granules do not stain readily with either acid or basic dyes, have wrongly described the chromophobe cells as being non-granular.

Löwenstein (1907) appears to have been the first to describe an adenoma composed of the agranular columnar cells. His examples were small, however, and by analogy with embryonic development he considered that such adenomata differentiated into α cell adenomata and represented the earliest stage of lesions which in some cases gave rise to acromegaly. The fact that they do not do so but form a well-defined, distinct type of adenoma which does not appear to have greater malignant tendencies than the other types of pituitary tumour is strong evidence in favour of the maturity of the cells from which they arise.

Adenomata of this type were first clearly defined by Kraus (1914), who called them "fœtal" adenoma (*"fötales Adenom"*). Later he referred to them as "fetal" or "fetal cell" adenoma (1945).

Kux (1931) described a case of such a tumour, in which death followed hæmorrhage into the substance of the growth.

As noted above, these tumours are mentioned in a number of text-books in German.

The first description in English seems to have been that of Shapiro (1931). Kraus (1945) mentioned the tumour in a review in the *Archives of Pathology*, and it has now been described and illustrated by Kraus and Anderson in Anderson's text-book (1948).

A large example of such a tumour from the Royal Prince Alfred Hospital, Sydney, was described by McGovern, Phillips and Wyke (1948) under the name of "pregranulocytic" adenoma. They recognized the morphological similarity between the cells of this tumour and the cells in the developing pituitary gland as described by Eugenia Cooper (1925).

MacCallum (1942), in examining the series of suprasellar tumours encountered in Dandy's clinic at Baltimore, Maryland, reported that a large number (113) were of remarkably uniform structure. These constituted by far the majority of their series of suprasellar growths. These tumours were not parapituitary tumours (so-called "craniopharyngiomata"), but were apparently adenomata of the anterior pituitary gland, which MacCallum thought related to the *pars intermedia*. There appears little doubt, although it is not quite certain, that these growths were so-called "fœtal cell" adenomata, arising presumably from the *pars tuberalis*, and thus it seems as if our notions of the pathology of suprasellar neoplasms may have to be revised.

The features of this type of adenoma, as described by Kraus, are that it is most typically composed of tall columnar or spindle-shaped cells with a tendency to a palisade arrangement against the capillary walls and connective tissue septa. McGovern, Phillips and Wyke (1948) pointed out the important fact that the cells, unlike chromophobe cells, are agranular, the cytoplasm appearing homogeneous when viewed with high magnification.

The features of these agranular adenomata are shown in the accompanying illustrations. Figure I shows the typical architecture of these tumours as described by Kraus, with narrow interlacing ribbons of tumour cells separated by comparatively wide connective tissue septa. Spindle-shaped forms with a tendency to palisade arrangement and long tails on some of the cells connecting them to one of the septa of connective tissue can be seen in Figure II. These two features, however, of architectural structure and cell shape and arrangement, although suggestive, are neither entirely constant nor entirely specific. Nuclear structure is unreliable, and the only sure and accurate method of diagnosis is careful study of the cytoplasm with the oil immersion objective. For this to be carried out satisfactorily thin sections (four micra) are needed, because in sections of the usual thickness (seven micra) there is too much overlapping of the tumour cells to allow good resolution. The opaque, homogeneous, agranular appearance of the cytoplasm can be seen in Figure II. This contrasts strongly with the coarsely granular appearance of chromophobe cells, illustrated in Figure III. The agranular cells show a tendency to develop clear areas in the cytoplasm having the appearance of vacuoles, seen in Figure II as a pale mottling. If this process becomes extreme, so that the cytoplasm is reduced to a coarse network, it is sometimes difficult to distinguish such a cell from a chromophobe cell.

According to Kraus, mixed adenomata of chromophobe and agranular cells are found, and such a tumour has been seen by the writer.

Kraus in his original description (1914) described a small example of an agranular tumour that probably was malignant. The others reported in the literature were apparently benign. Kux reported his as malignant on the basis of the histological picture, but this cannot be regarded as a reliable criterion in the case of pituitary adenomata, as many benign examples have a very cellular structure. As emphasized by Müller (1934), the only acceptable criteria of malignancy are the microscopical demonstration of local invasive growth or else of metastasis—this occurs by the cerebro-spinal fluid, or (very rarely) by the bloodstream. The writer has seen a case in which cancerous invasion of the sphenoid bone supervened in a slowly growing adenoma of this agranular type.

The objections to the term "fœtal" or "fœtal cell" have already been noted. The term "pregranulocytic" either is equivalent to "fœtal cell", or else is dependent upon a particular view of the function of the columnar cells of the mature gland. It is suggested that the simple descriptive term "agranular adenoma" be adopted.

The incidence of these agranular pituitary tumours is unknown as they have been so little recognized, having usually been described no doubt as chromophobe tumours. Kraus (1945), however, said that small nodules of these cells are not rare, and the descriptions given by MacCallum (1942) suggest that perhaps these agranular adenomata may form quite a large proportion of tumours in the hypophyseal region arising above the *diaphragma sellæ*.

Acknowledgements.

I wish to thank Mr. S. Woodward-Smith for the photomicrographs.

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Legends to Illustrations.

FIGURE I.—Agranular adenoma of pituitary, showing the typical architecture as described by Kraus. Hæmatoxylin and eosin stain, × 185.

FIGURE II.—Agranular adenoma of pituitary, showing tendency to palisade formation and the non-granular, opaque appearance of the cytoplasm. Hæmatoxylin and eosin stain, × 1100.

FIGURE III.—Chromophobe cells, showing the granular appearance of the cytoplasm. From a normal pituitary gland. Hæmatoxylin and eosin stain, × 1100.

Reports of Cases.

A NOTE ON FATTY CHANGE IN THE LIVER COMPLICATING AUREOMYCIN THERAPY.

By E. G. SAINT[1] AND R. A. JOSKE.

From the Clinical Research Unit of the Walter and Eliza Hall Institute of Medical Research and the Royal Melbourne Hospital, Melbourne.

STOKES and his colleagues (Shaffer *et alii*, 1950) have reported that the clinical course of patients with hepatic failure due to severe virus infection or nutritional cirrhosis may be favourably influenced by aureomycin. Aureomycin also prevents hepatic necrosis in rats fed on a yeast diet deficient in sulphur-containing amino-acids (Gyorgy *et alii*, 1950). These observations have led us to explore the therapeutic value of antibiotics in general in subacute and chronic liver disease. The purpose of this communication is to record a case of subacute virus hepatitis in which reversible fatty infiltration of the liver developed during treatment with aureomycin.

Clinical Record.

C.B., a schoolgirl, aged fifteen years, was admitted to the Royal Melbourne Hospital on January 1, 1951. After a short febrile illness in March, 1950, she had become jaundiced; this condition had persisted until her admission to hospital. For at least two months before the onset her diet had been deficient in all essential nutriments, but had been adequate thereafter. Viral hepatitis was prevalent in the district at the time of onset of her jaundice.

She was a well nourished girl with moderate jaundice. The temperature was 37·4° C. and the pulse rate 106 per minute. The liver was enlarged one centimetre below the right costal margin, but the spleen was not palpable.

The provisional diagnosis of subacute infectious hepatitis was confirmed by biochemical investigations and histological studies.

The patient was confined to bed and given a diet rich in protein. Vitamin supplements (thiamine 10 milligrammes, nicotinic acid 50 milligrammes, riboflavine five milligrammes, and ascorbic acid 75 milligrammes per day) were given orally.

The patient's progress may be most conveniently followed in five distinct periods (see Figure I).

1. From day 5 to day 12, owing to shortage of supplies, only a very brief course of aureomycin was given (two grammes daily). The jaundice gradually diminished after this treatment.

2. From day 17 to day 30, penicillin was given orally (100,000 units every two hours). Except for a further lessening of the jaundice, there was no dramatic change in the patient's condition.

3. From day 33 to day 64, treatment with aureomycin was recommenced. Except for an interval of two days (days 51 and 52), two grammes were given daily in divided doses of 0·5 gramme every six hours. Mild toxic symptoms —epigastric discomfort—developed during treatment. These responded to milk drinks and did not require cessation of therapy.

4. From day 64 to day 74 all antibiotic treatment was withheld, and the patient was discharged from hospital on the seventy-fourth day. She continued to have a slight fever and a trace of jaundice remained.

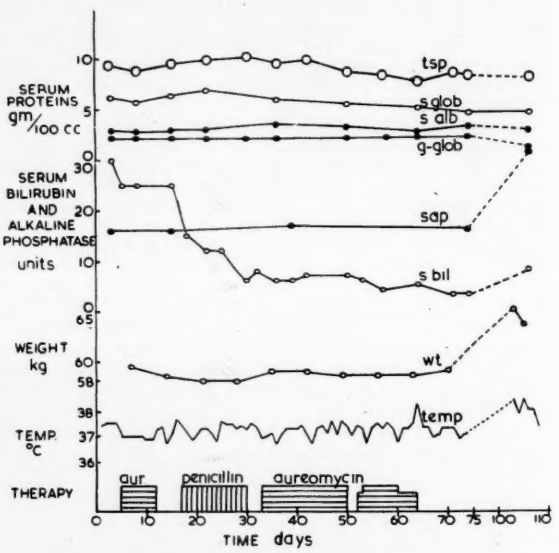

FIGURE I.

The results of serial biochemical tests in a case of subacute hepatitis treated with the oral administration of penicillin and aureomycin.

5. From day 103 to day 110 she was in hospital for further clinical review, liver biopsy and biochemical tests. During the intervening month she had felt well, but fever and slight jaundice persisted. There had been a slight gain in weight (six kilograms) since her first admission to hospital. During this second admission no enlargement of the liver or spleen was noted.

Follow-up study revealed that the patient died in hepatic coma elsewhere a year later. No autopsy was performed.

Biochemical Studies.

The following investigations were made during the patient's first admission to hospital. Blood examination showed that the hæmoglobin value was 11·6 grammes *per centum* and the white blood cells numbered 7500 per cubic millimetre. The Wassermann test produced a negative response, and the result of a Coombs test was negative. The erythrocyte sedimentation rate was 100 millimetres per hour (Westergren). The blood urea content was 36 milligrammes *per centum*. The fæcal stercobilinogen content was five milligrammes *per centum*. Bile pigments and bile salts were present in excess in the urine.

Tests of liver function—the cephalin flocculation test, fractional serum protein estimation, and estimations of serum bilirubin and alkaline phosphatase—were repeated at weekly intervals throughout the patient's stay in hospital. The results are shown in Figure I.

[1] Aided by a grant from the National Health and Medical Research Council.

Apart from the fall of the serum bilirubin from a high initial level of 30 units to three units, there was little change in the pattern of liver function test results. A striking feature was the high level of serum globulin (6·2 grammes *per centum*) causing reversal of the albumin-globulin ratio.

Serial Histological Studies.

Liver biopsy was performed four times: (i) shortly after the patient's admission to hospital (day 4); (ii) on day 26 while she was receiving penicillin therapy; (iii) on day 54, three weeks after the commencement of prolonged aureomycin treatment; and (iv) on day 107, six weeks after aureomycin therapy had been discontinued. The findings were as follows.

On day 4 (Figure II) the lobular architecture was considerably distorted; active necrosis and regeneration of the parenchymal cells and invasion of the lobule with inflammatory mononuclear and polymorphonuclear cells were evident. Excessive fibrous tissue and inflammatory cells were present in the portal tracts.

On day 26 (Figure III) the appearances were similar to those seen in the previous biopsy specimen.

On day 54 (Figure IV) the appearances of active subacute hepatitis were unchanged. The most notable feature was the presence of fat droplets in the liver cells throughout all sections; they were for the most part of moderate size.

On day 107 (Figure V) fat droplets had entirely disappeared and the histological picture was similar to those of the first and second biopsy specimens. There did not appear to be any diminution of inflammatory change in the section.

Discussion.

In this case the epidemiological, clinical, biochemical and histological features were typical of subacute hepatitis. It is conceivable that the poor nutritional status of the patient at the time of infection contributed to the severity and chronicity of the clinical picture. Complete reversal of the albumin-globulin ratio is a common biochemical finding in chronic hepatitis, but the level of hyperglobulinæmia encountered in this patient is unusual.

There is no doubt that the appearance of fat in the liver in this patient was related to aureomycin therapy; fat droplets were absent in biopsy specimens before treatment and disappeared within six weeks after treatment had ceased. Dietary influences played no part, for throughout treatment her appetite was unimpaired and she ate a standard hepatitis diet, rich in protein, during the whole period of observation.

Yesner and Kunkel (1951) also demonstrated the appearance of fatty infiltration in the liver in patients treated with aureomycin, but did not find these changes after penicillin, streptomycin, or "Chloromycetin" therapy. Lepper and his co-workers (1951) noted fatty metamorphosis and actual necrosis of liver cells in patients treated with massive oral and intravenous doses of aureomycin. The importance of their observations is diminished by the knowledge that many of their cases were of severe septicæmia, in which toxic damage to the liver is to be expected. In the case reported here, in which moderate aureomycin dosage was given, there was no deterioration in the patient's condition as judged by biochemical tests, and as in mild nutritional hepatitis, the fatty change was reversible. On the other hand, there is no evidence that aureomycin had any dramatically beneficial effect on progress. Neither have we observed fatty change following aureomycin therapy in chronic hepatitis with gross established fibrosis.

Stokes and his colleagues (*loco citato*) believe that experimental necrosis of the liver in rats is due to toxic substances derived from organisms in the large bowel. They postulate that these enterogenous "toxins" are normally detoxified by sulphhydryl-containing amino-acids in the food, and that aureomycin may exert its protective influence by suppressing the growth of bowel flora. The fact that "Chloromycetin", which has a similar antibacterial spectrum to aureomycin, does not cause fatty infiltration is of more than academic interest (Yesner and Kunkel, 1951).

On the other hand, Herrell and Heilman (1949) have shown that aureomycin is present in the bile draining from a choledochostomy tube in concentrations suggesting that it is selectively excreted by the liver. Galt and Hunter (1950) found that aureomycin depressed fæcal urobilinogen in normal adults. Jukes *et alii* (1950) found that aureomycin had a growth-promoting effect on pigs, and Cunha *et alii* (1951) showed that this was greater than that obtained with penicillin or streptomycin. These observations suggest that aureomycin may have a specific action on the liver parenchymal cells of the host, as well as a bacteriostatic action on the intestinal flora.

It may be that the biochemical role of aureomycin, as a bacteriostatic agent and as a substance which causes fatty change in the liver, is one involving sulphhydryl metabolism, since there is good evidence that the "final common path" of fat infiltration is deficiency of the sulphhydryl grouping.

Summary.

A case of subacute infectious hepatitis is described in which serial biochemical and histological studies were carried out under control conditions.

The patient was given aureomycin, two grammes daily, for four weeks, and considerable fatty infiltration of the liver was noted, without concomitant change in the results of liver function tests. This fatty change disappeared after cessation of aureomycin therapy.

A specific metabolic role of aureomycin, possibly involving sulphhydryl metabolism, is postulated.

Acknowledgements.

Our thanks are due to Dr. John Funder for the histological reports on the biopsy specimens. The biochemical investigations were performed by Miss S. Weiden, of the Clinical Research Unit, and the photomicrographs were prepared by Mr. Matthaei, of the Faculty Workshops, University of Melbourne.

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Legends to Illustrations.

FIGURE II.—Liver biopsy (day 4) before commencement of antibiotic therapy, showing lobular disorganization and diffuse infiltration with inflammatory cells. (Hæmatoxylin and eosin stain, × 550.)

FIGURE III.—Liver biopsy (day 36) taken while the patient was having oral penicillin therapy, but before aureomycin therapy was begun. There is still extensive fibrosis in the portal tracts. The parenchymal cells show great variation in size and many are multinucleated. No fat globules present. (Hæmatoxylin and eosin stain, × 550.)

FIGURE IV.—Liver biopsy (day 54) taken nineteen days after aureomycin therapy was begun, showing the presence of numerous droplets in the parenchymal cells. Fat stains on frozen sections confirmed that these droplets represented fatty change. (Hæmatoxylin and eosin stain, × 1000.)

FIGURE V.—Liver biopsy (day 107) taken forty-three days after the cessation of aureomycin therapy, showing return to the histological picture seen in Figures II and III. No fat droplets were demonstrable in this section. (Best's carmine stain, × 550.)

COMPLICATIONS OF DUODENAL ULCER.

By R. M. DUNN,
Sydney.

PERFORATION probably occurs in 10% of chronic peptic ulcers. A combination of two complications of duodenal ulcer (hæmorrhage and perforation) is rare, and hæmorrhage is said to accompany some 6% of perforations (Aird, 1949). Stenosis must be rare in association with either bleeding or perforation. It may be said that fibrosis means healing and consequently no bleeding or perforation.

The following case is reported because bleeding, perforation and severe obstruction all occurred within a few days of each other. The obstruction appeared to result from inflammation and œdema and extragastric adhesions from a previous perforation. It was difficult at operation to assess the degree of intrinsic pyloric fibrosis. This case is of great interest, for it raised many difficult problems in management.

Clinical Record.

The patient was a male. He had had intermittent attacks of epigastric pain since 1942. He was discharged from the army in 1943 with a duodenal ulcer. His symptoms became worse in 1945 and an attack of jaundice supervened. This was due to an intraperitoneal abscess. It was from a leak into the lesser sac, and was drained on January 27, 1945, and the jaundice subsided in two weeks.

On October 2, 1951, he was admitted to the Repatriation General Hospital, Concord, with a history of an exacerbation of symptoms of two weeks' duration, with melæna and sudden severe upper abdominal pain present for six hours, the pain radiating to the right shoulder.

On examination of the patient, his pulse rate was 120 per minute. His blood pressure was 110 millimetres of mercury, systolic, and 70 millimetres, diastolic. His hæmoglobin value was 92%. Tenderness and rigidity were mainly confined to the right upper quadrant of the abdomen. In view of his past history, his clinical condition and the fact that he was known to have an ulcer, a diagnosis of perforation was made. Conservative therapy with gastric suction and antibiotics and intravenous therapy were commenced, as the signs were localized. His abdominal condition seemed to subside over the next three days, but on October 5 it was obvious that he had a large gastric residue and there was no bile in the aspirate. Potassium therapy was instituted and gastric suction maintained, but the pyloric block remained absolute. It has been my experience that suitable potassium therapy will relieve most duodenal or stomal obstructions due to œdema. A little barium run down the tube confirmed the obstruction. The hæmoglobin value at this time was 70%. On October 7 the patient suddenly showed signs of further bleeding by producing a large melæna stool, and his hæmoglobin value dropped to 18% (2·7 grammes *per centum*). The blood urea content was 92 milligrammes *per centum*, and the carbon-dioxide combining power was 58·7 volumes *per centum*.

A transfusion of three litres of blood and two litres of serum was given over the next two days. The volume of gastric aspirate was still well over one and a half litres in the twenty-four hours. In view of the obstruction and the continued bleeding, it was considered that a surgical attempt should be made to relieve those conditions, for the deterioration of the patient was quite evident. On October 12 laparotomy was performed.

A mass of adhesions from the previous operation was present. There was a large ulcer of the first part of the duodenum, which almost encircled the gut and contained a perforation on the anterior wall. This had a fibrin and omental seal. The duodenum and prepylorus were swollen and œdematous and adherent to adjacent viscera. Glands along the lesser and greater curvatures of the stomach were enlarged, and the stomach was grossly dilated. The relief of his condition appeared difficult. Gastrectomy was not possible, whilst there did not seem to be any satisfactory method of making a direct attack on the bleeding point. Posterior gastro-jejunostomy was impossible owing to obliteration of the lesser sac from the previous perforation and abscess formation, for which drainage had been required in January, 1945. The tissues were adherent and friable and the sutures readily tore out. It was decided to oversew the perforation, and perform an anterior gastro-jejunostomy and drain the localized area of peritonitis by a tube in the lateral gutter. This procedure did not attack the bleeding, but it was considered that it might tide the patient over a crisis, and permit a more radical procedure at a later date. Enteroanastomosis was not performed.

His post-operative course was satisfactory. Bleeding ceased and the stoma functioned well. The tube was removed in forty-eight hours. On the eleventh day after operation deep calf vein thrombosis (left) was observed. This was treated with anticoagulants and subsided within the next week. He was discharged from hospital on the twenty-eighth day after operation.

Six months later he looked well and his hæmoglobin value was normal. He still had moderate postprandial discomfort. He adhered to a diet and took "Amphogel" regularly. He had gained three stone in weight since operation. He had the satisfactory occupation of milk-bar attendant.

Comment.

The combination of perforation and bleeding increases the mortality tremendously, and it was difficult to decide if and when to intervene in this case. It was decided, in view of the bleeding and obvious localization of signs to the upper part of the abdomen, to treat the perforation conservatively. Once obstruction and further bleeding occurred it was held that laparotomy was indicated, with a view to performing an adequate gastric resection and dealing with the bleeding. This proved impossible, because of the sepsis, the adhesions and the technical difficulties present at the time. I then considered a two-stage gastrectomy with high division of the stomach and gastro-jejunostomy, oversewing the distal stomach pouch and resecting this some time later. However, this procedure of Devine's would have been ill-advised, for it did not attack the bleeding, the risk of a "blow out" was very great in the presence of obstruction, it would have meant an added procedure on a very ill patient, and it meant opening up tissue planes widely in the presence of sepsis. A compromise of gastro-jejunostomy with oversewing of the perforation was decided upon. This could be done quickly, it would relieve the obstruction and cure the perforation, and by resolution of the inflammation and œdema the bleeding might stop. Fortunately the hæmorrhage did stop over the next forty-eight hours.

The patient still has a large duodenal ulcer, and should he have hæmorrhage or get a stomal ulcer in the future, he is faced with a long and hazardous surgical procedure.

Acknowledgements.

I wish to thank the Chairman of the Repatriation Commission for permission to publish this case. I am also indebted to Dr. H. Turnbull, visiting surgeon, Repatriation

General Hospital, Concord, for his helpful advice and assistance with this case.

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A CASE OF STRANGULATED HERNIA THROUGH THE FORAMEN OF WINSLOW.

By IAN HAMILTON,
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IT is given to few men to encounter twice within the course of a few years an extremely rare surgical condition. For this reason I am proud to report my second case of this most unusual and rare surgical emergency. I previously reported one such in 1946.

Clinical Record.

The present patient, A.F., was admitted under my care to the Royal Adelaide Hospital at 4 p.m. on June 13, 1950. He was a motorman, aged thirty-six years, and gave a history that he had suffered from infrequent attacks of heartburn and wind usually about one hour after meals, relieved by antacid powders and not related to any particular food. He did not state how long he had had these symptoms. At 9.30 a.m. on the day of his admission to hospital he had developed windy pains in his abdomen. These had developed into a continuous dull aching with sharp exacerbations which caused him to double up. The pain was situated just above the umbilicus. His bowels had moved that morning and there were no other significant facts in the history.

On examination, he appeared as a strong youngish man, not looking very ill, but in great distress, sitting crouched forward and restless. His tongue was moist and slightly furred and his teeth were false; the fauces were clear. His pupils were dilated but reacted to light and accommodation. No glands were palpable in the neck, the trachea was in the mid-line, and the thyroid was not enlarged. His chest moved evenly and the lungs were clinically clear. Examination of the heart showed that the apex beat was impalpable, and the heart was not enlarged or displaced. On percussion the sounds were clear and regular with no bruits. His pulse was regular and of good volume, the rate being 70 per minute; the vessel walls were good. The lower segments of the abdomen were soft; there was no tenderness or rigidity. In the epigastrium there was tenderness with guarding, but no rigidity. His abdomen moved on respiration. No masses were felt. The arm jerks and knee jerks were active, the ankle jerks were sluggish, the plantar reflexes were normal. Rectal examination revealed impacted fæces felt by the tip of the finger; the prostate was possibly slightly enlarged and soft; the mucosa was free, the median groove was palpable.

The admitting officer suggested as a possible diagnosis acute cholecystitis or an acute exacerbation in a duodenal ulcer and put him under observation. After his admission to hospital he continued to be very restless and vomited small amounts of bile-stained fluid. He was radiologically examined, the plates showing fluid levels and distension suggestive of small bowel obstruction, probably high up. A two-enema test gave an equivocal result. The following day he vomited large amounts of bile-stained fluid, and a repeat X-ray examination revealed large numbers of fluid levels in the small bowel without gross distension. Gross distension of the caecum and ascending colon was also noted. The reason for this will be seen later.

By the next day (June 15) he was vomiting black fluid; he was considerably distressed and dehydrated and a drip and suction regime was established. This improved his condition, and the house staff reported him to me whilst I was doing a ward round. I thought it obvious that he had a small bowel obstruction, probably from a strangulated internal hernia, possibly a hernia through the foramen of Winslow on account of the distribution of the distended coils of gut. I was assisted in this opinion by a very vivid memory of my previous case. In view of this, that afternoon I performed a laparotomy with the following result.

A small right paramedian incision situated about one-third above the umbilicus and two-thirds below was made first of all. The rectus muscle was retracted out and the abdomen opened. Through this incision some very distended coils of small intestine were found. When these were traced upwards, it was found that the upper end disappeared into the duodenum. When the lower end was traced down, it was seen that a loop of intestine had migrated through the foramen of Winslow. The gastro-hepatic omentum was extremely thin but intact, and shining through it were some grossly distended, very dark-coloured coils of small intestine lying within the lesser sac of the peritoneum. Whilst these were being examined the gastro-hepatic omentum split open. An attempt was then made to withdraw the loops through the foramen of Winslow, but they were tightly impacted, and so the foramen was dilated by pushing downwards on to a sharp crescentic fold of peritoneum, which could be felt on the lower border of the foramen. After the foramen had been dilated, the loops of small intestine were easily delivered back into the general abdominal cavity. It was then found to be viable, including the constricting ring. The hole in the gastro-hepatic omentum was closed with continuous fine catgut stitches and the abdomen was then closed, the peritoneum being closed with continuous catgut stitches, the anterior sheath of the rectus with interrupted stainless steel stitches and the skin with silk and silkworm gut.

His recovery after the operation was uneventful; he was discharged from the hospital on June 24, quite well, and reported back on July 12, when he was instructed to resume his work. He had completely recovered.

Comment.

The only regrets that I have about him are that the obstruction was not recognized by my staff earlier, and that I did not make a firm diagnosis of the condition. The X-ray films studied afterwards appear to show unequivocal evidence of the condition. The small intestine was drawn tightly across the transverse colon below the foramen of Winslow, constricting it and causing the distension of the ascending and transverse colon proximal to it, in addition to which there was a mass of distended coils of small intestine above the transverse colon, unlikely to be anywhere except in the lesser sac of the peritoneum.

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HAMILTON, I., and HARDY, J. E. S. (1946), "Hernia through the Foramen of Winslow Emerging through the Gastro-hepatic Omentum", M.J. AUSTRALIA, 1: 805.

TORSION OF APPENDICES EPIPLOICÆ: A RARE CAUSE OF ACUTE ABDOMINAL PAIN.

By FRANK KENNY,
Warracknabeal, Victoria.

TORSION and infarction of the *appendices epiploicæ* must be very rare as a cause of acute severe abdominal pain requiring operation for its relief. Prior to 1949 only 64 cases had been reported. In 1949 Sir Cecil Wakeley and Peter Childs (1949) reported eight cases of their own and detailed the anatomy, the function and the surgical significance of these appendices. The eight cases all presented as acute abdominal emergencies requiring laparotomy, and in each case gangrene and infarction of a single *appendix epiploica* was revealed. Only in one case was the correct diagnosis suggested pre-operatively. The cause of the infarction was not clearly seen. In some of the cases, it was presumed that torsion had taken place prior to the infarction and gangrene, and in others there was no

evidence of torsion and it was considered that the thrombosis was spontaneous.

Clinical Record.

E.F., aged thirty-one years, a commercial traveller, presented on May 21, 1952, complaining of severe pain of twenty-four hours' duration in the left side of the abdomen. The pain was constant and severe enough to make him double up. The onset was gradual, and the pain, which had become worse during the previous night, was associated with nausea and loss of appetite, but there was no vomiting. He was constipated, but had a desire to pass flatus. The patient said that he felt cold and shivery and could not get warm despite a very good layer of warm clothes. There was no history of previous attacks of abdominal pain, nor had he any cough or disturbance of urinary function.

Examination showed the patient to be a well-built young man in obvious pain. His temperature was 97·4° F. and his pulse rate was 88 per minute. His tongue was coated and his breath offensive but not "abdominal". Apart from his abdomen no abnormalities were found elsewhere. The urine was normal on routine macroscopic and microscopic tests. Abdominal examination revealed pronounced tenderness in the left iliac fossa at a site corresponding to McBurney's point on the right side. There was only a little muscle guarding and there was no area of hyperæsthesia. Rectal examination revealed a loaded rectum and tenderness high up on the left side.

A provisional diagnosis of acute severe diverticulitis was made, and he was admitted to hospital for expectant treatment. However, his pain increased and became associated with vomiting. A leucocyte count resulted in a figure of 8400 per cubic millimetre in about normal distribution. Laparotomy disclosed the true nature of his condition to be torsion and gangrene of three adjacent *appendices epiploicæ* at a site where the sigmoid colon is palpable, and corresponding to the site of the patient's pain and tenderness. The torsion of each appendix was clearly seen, as each had a well developed pedicle, and in the most distal appendix the pedicle had rotated three times. All the appendices were swollen to twice the size of the normal nearby appendices, and the colour in each was the dark grey-green of well established gangrene. Unravelling of the torsions did not improve the colour of any of the affected parts. There was no detectable abnormality in the segment of bowel from which the appendices sprang. There was no free peritoneal fluid.

The three appendices were removed after ligation of their pedicles and X-stitching of their bases. A normal vermiform appendix was removed.

Eight hours after operation the patient was free of his severe pain. Convalescence was uneventful. Four months later the patient was well and had had no further abdominal pain.

Summary.

A rare cause of an acute abdominal emergency is described. It is considered unusual in its rarity, in that definite and clear torsion was seen in each of the three appendices in contrast to the previously reported cases, in which the torsion was not obvious and in which only one appendix was involved.

Reference.

WAKELEY, C. P., and CHILDS, P. (1949), "Torsion and Other Affections of the Appendices Epiploicæ", *Lancet*, 2: 594.

Reviews.

Skin Therapeutics: Presentation and Preparation (Materia Medica Dermatologica). By M. K. Polano, with an introduction by Clarence S. Livingood; 1952. Amsterdam: Elsevier Publishing Company. 9¼" × 6¼", pp. 290. Price: 37s. 6d.

THIS book is an unusual and interesting publication from Holland; it is written in English and is not a mere translation. The subject matter may be summarized under two headings: (*a*) The external treatment of common skin diseases by creams, lotions, ointments and paste. (*b*) The compounding of these applications by pharmaceutical chemists.

In his preface the author states: "The necessity for the pharmacist to give more attention to the details of dermatological prescriptions becomes obvious, from the fact that the same prescriptions often turn out quite differently in different pharmacies." This experience is not limited to Holland, as any practitioner in this country can testify.

The writer points out the lack of international standardization of the formulæ of many basic preparations, for example the official cold creams of England, United States of America, Switzerland and Holland are all somewhat different. Anyone who has had practical training in both pharmacy and medicine can hardly blame Australian pharmacists for varying results unless the prescriber indicates exactly what he wants dispensed. There is no space to enlarge upon this subject, but when—to take an everyday example—"greaseless base" is prescribed the dispenser has at least a dozen to choose from No wonder at times local applications vary even from the same pharmacy. The author advises the doctor to mix his own prescriptions from time to time and compare these with the dispensed products from the chemist. Such an attitude should not be necessary in this country if clear instructions are given. He further thinks it is a good idea for the patients to leave the ointments on and not wash them off before some of their visits, in order that the physican may see exactly what the applications look like on the skin. One could certainly learn a lot in this way.

The publication ends with a comparative list of dermatotherapeutic drugs used in the American, British, Swiss, Dutch, Belgian, Danish, French, German, Italian and Spanish official formularies. The author is to be congratulated upon compiling such a fund of pharmaceutical information in relationship to dermatology. The book is of as much interest to dispensing and manufacturing chemists as to those concerned in the treatment of skin diseases.

The 1952 Year Book of Medicine (May, 1951–May, 1952). Edited by Paul B. Beeson, M.D., J. Burns Amberson, M.D., William B. Castle, M.D., Tinsley R. Harrison, M.D., George B. Eusterman, M.D., and Robert H. Williams, M.D.; 1952. Chicago: The Year Book Publishers. 8" × 5½", pp. 736, with 122 illustrations. Price: $6.00.

IN the van of the latest series of practical medicine year books comes "The 1952 Year Book of Medicine". A new section on metabolism has been added under the editorship of Dr. Robert H. Williams. The other five sections retain the editors of the previous Year Book of Medicine. In the section on infections, Paul B. Beeson has included chapters on basic investigations, antibiotic therapy, bacterial endocarditis, the treatment of pneumonia, collagen diseases, disorders simulating infectious diseases, immunization, biological warfare, and various specific infections. The sections on the chest (J. Burns Amberson), the blood and blood-forming organs (William B. Castle), the heart and blood vessels and the kidney (Tinsley R. Harrison), and the digestive system (George B. Eusterman) are subdivided on more or less conventional lines. The new section on metabolism has chapters on diabetes and hyperinsulinism, mineral metabolism, rheumatoid arthritis and gout, miscellaneous metabolic disorders, the thyroid gland, the adrenal glands and the pituitary gland. The editorial contribution in words to this volume is small, but a great deal of discriminating toil must have gone into the selection and preparation of such a large number of abstracts from such a wide field of medical literature. This year book will appeal to and be useful to practitioners of practically every aspect of medicine.

A Short Practice of Surgery. By Hamilton Bailey, F.R.C.S. (England), F.A.C.S., F.I.C.S., F.R.S.E., and R. J. McNeill Love, M.S. (London), F.R.C.S. (England), F.A.C.S., F.I.C.S., with pathological illustrations by L. C. D. Hermitte, M.B., Ch.B. (Edinburgh). Ninth Edition; 1952. 9" × 6", pp. 1262, with 1234 illustrations, 272 in colour. Price: 55s.

THE ninth edition of this book has been published. All the chapters have been revised or rewritten. Some of the former illustrations have been replaced by new ones and 135 additional figures have been included.

This text-book remains an outstanding example of the way in which material should be presented to the student. Judging by other text-books that have been recently published many authors and publishers have still to learn that

arrangement of printed matter makes all the difference to the reader who later has to reproduce what he has read in examination form. There is all the difference in the world, for example, between the following arrangements.

"Secondary deposits are likely to occur particularly as a result of a primary growth in the following situations: breast, prostate, kidney, bronchus and thyroid."

Bailey and Love present this as follows:

"Secondary deposits are likely to occur particularly as a result of a primary growth in the following situations:

1. Breast.
2. Prostate.
3. Kidney.
4. Bronchus.
5. Thyroid."

Where it is possible to do so Bailey and Love make illustrations take the place of words, or at all events make them give point in a very vivid way to the text. If a short surgical text-book had to be recommended to a student, this is the one we should select.

Synopsis of Pathology. By W. A. D. Anderson, M.A., M.D., F.A.C.P.; Third Edition; 1952. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 8″ × 5″, pp. 788, with 334 text illustrations and 13 colour plates. Price: 84s.

THE text of W. A. D. Anderson's book is only about 60% of that of one of the standard text-books of pathology, but the author has included information on a much greater variety of subjects than are to be found in the standard text-book. Infective processes receive a remarkably wide treatment and many bacterial, rickettsial, viral, spirochætal, mycotic and protozoal infections are mentioned individually, often with excellent illustrations. The importance of many subjects contained in the synopsis has been recognized only recently, and the bibliography at the end of each chapter refers the reader to pertinent articles in the literature. The book contains a number of useful tables in which are summarized clinical and pathological details of diseases and of disease groups. Chapters on chemical poisons, vitamins and the skin contain many useful points.

One cannot expect to agree with all the ideas expressed in any comprehensive text and it is mainly in the treatment of tumours, where the theoretical approach is that which has appeared in accepted text-books for many years, that this book lags behind contemporary British thought. While the author's succinct comments are often refreshing, there is a danger that bare statements may be swallowed *in toto* by the student and that the development of his critical approach to pathology may be hindered. The effect of the many very good illustrations, often of unusual conditions, is sometimes marred by the presence of a figure which is unsatisfactory from both the photographic and pathological points of view.

This synopsis may be recommended to students of pathology at all levels of medical practice who wish to omit some of the more sententious discussions on debatable subjects, and the clarity of style and wide range of topics commend the volume to those who wish to refer quickly to some aspect of pathology and to obtain references to recent literature.

Antibiotics: A Survey of their Properties and Uses. Published by direction of the Council of the Pharmaceutical Society of Great Britain; 1952. London: The Pharmaceutical Press. 9″ × 6″, pp. 302, with 24 illustrations. Price: 25s.

THIS book is published by direction of the Council of the Pharmaceutical Society of Great Britain, as the second edition of their book, "Penicillin: Its Properties, Uses and Preparations", published in 1946; this has been out of print for some months and the authors have decided to rewrite the whole book so as to bring it up to date, and to enlarge its scope by the inclusion of antibiotics other than penicillin.

The book is written for the non-specialist medical practitioner, for the pharmacist and also for the veterinary surgeon, and it is concerned almost entirely with the four antibiotics readily available in the United Kingdom, namely, penicillin, streptomycin, chloramphenicol and aureomycin; terramycin is also mentioned in less detail.

The introductory chapters on the discovery and history of the antibiotics are fascinating to read, and there is an intensely interesting chapter on their commercial manufacture. The chapters dealing with the chemistry and stability of the antibiotics are clearly and simply set out and should be appreciated by any reader who has a knowledge of the basic principles of organic chemistry. Information with regard to the relative stability of the various antibiotics in aqueous solution is authoritatively stated. Standards and methods of assay, mode of action and toxicity of the antibiotics are fully discussed and methods of treatment suggested for the possible toxic reactions. The book then sets out in detail the optimal dosages, duration of treatment and antibiotic of choice in a comprehensive number of diseases in which antibiotics have been used with benefit. This chapter should be of the greatest practical importance and serve as a useful guide to the clinician in treatment.

Detailed chapters for the pharmacist are included, regarding the preparation and dispensing of the antibiotics and providing many useful formulæ.

The chapter on the legal aspects mainly concerns pharmacists and practitioners working in the United Kingdom, and the book concludes with a summary of the commercial preparations and a good index.

This readable edition surely includes in its 290 pages the most concise authoritative and up to date knowledge of the antibiotics so far published.

Studies in Visual Optics. By Joseph I. Pascal, B.S., M.A., O.D., M.D.; 1952. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 9″ × 6″, pp. 800, with 138 text figures. Price: £6 11s. 3d.

THIS is a first-rate book. It is the work of a master of his subject who knows the mathematical limitations of his audience and who has developed an amazing and effective ingenuity in presenting the key sections of his subject in dramatic and therefore memorable form.

Pascal is most famous for his DAM formula, known to all who work with visual optics. Though in this book he is dealing with the mathematical background of applied optics, it is essentially a work for application to everyday problems, and Pascal is a very wise man, for his asides on practical refraction are masterpieces of common sense and understanding of humanity. The chapter on binocular functions is perhaps less lucid than the rest, suffering from attempts at over-simplification; but the whole is admirable, covering a unique field for the ophthalmological world. Apart from the basic mathematics of reflection, refraction, mirrors, prisms, and lenses of all types, he is particularly good on objective methods of refraction, with and without cylinders, and the various subjective tests. There is much else, from "a thimbleful of trigonometry" to the relationship between lens form and lens power and on to contact lenses.

The price of this book, like that of all American books, is high, but this is a book that the ophthalmologist must have beside him.

A Handbook of Operative Surgery: Surgery of the Chest. By Julian Johnson, M.D., D.Sc. (Med.), and Charles K. Kirby, M.D.; 1952. Chicago: The Year Book Publishers, Incorporated. 8¼″ × 6″, pp. 388, with 81 illustrations. Price: $9.00.

THIS book is an excellent little production. The stated aim of the authors, "to publish an atlas of thoracic surgical operations", has been achieved by means of eighty simple, concise, black and white plates. These plates have been accurately and adequately interpreted. In fact, the greater part of the book is occupied by the plates and their interpretation.

Special mention must be made of the sections devoted to incisions, pulmonary anatomy and pulmonary resections. The trainee in thoracic surgery will find them of great help. Likewise, the standard cardio-vascular and œsophageal procedures have been effectively illustrated.

A number of controversial statements have been made. Few chest clinicians would agree that 50% of bronchogenic carcinomata can be seen with the bronchoscope, or that "in the emergency evaluation of chest injuries only a stethoscope and a thoracentesis tray were necessary". Nor would the methods of draining a chest meet with the approval of all thoracic surgeons.

The authors have stated the limitations of the book. In view of this they have shown the judgement of experience in selecting the important pre-operative considerations and post-operative complications for discussion. They have commendably avoided the mistake of tabulating an extensive list and giving scant attention to the important features.

There is nothing ostentatious about this book, but it has been written with a certain dogmatism which bespeaks long and careful observation. For this very reason it will be of real value to anyone embarking upon a thoracic surgical career.

The Early History of the Royal Alexandra Hospital for Children, Sydney, 1880 to 1905. By P. L. Hipsley, M.D. (Sydney), F.R.A.C.S.; 1952. Sydney: Angus and Robertson. 9" × 6", pp. 120, with 37 illustrations. Price: 25s.

SOON after Queen Victoria commenced her long reign the people of England realized that the insignificant child was due for kindly consideration in any progressive scheme to improve social conditions in a rapidly growing community. One practical and essentially humanitarian movement in this direction was the establishment of a special hospital for sick children in London about the middle of last century. With similar good intentions, a band of influential citizens in far away New South Wales decided in 1879 to enlist public sympathy in a modest venture to provide expert medical and surgical care for some of the sick children in the poorer districts of Sydney.

In a small book, which is a splendid model of its kind, Dr. P. L. Hipsley has made a valuable contribution to the medical and social history of this country by undertaking a thorough and systematic research into the circumstances, events and personalities connected with the development of the "Sydney Hospital for Sick Children" from 1879 to 1905. At the end of the period under review the persistent demands of medical science and the need for more accommodation made it imperative that the old hospital at The Glebe should be abandoned. A new site was found at Camperdown, and in 1904 the foundation stone was laid for an institution that was to become eventually the largest hospital for sick children in the southern hemisphere.

In the setting out of historical data, Dr. Hipsley gives the reader a picture of colonial life and recalls the general scene of medical activity in Sydney towards the end of last century. As a house surgeon in the early days of the old hospital and later as a distinguished surgeon for many years on the staff of the Royal Alexandra Hospital for Children at Camperdown, he is fully competent to give an informed account of the diseases then prevalent in children, and of the steps taken to counteract or prevent them as new knowledge kept on filtering in from overseas. There are interesting biographical sketches of medical practitioners, many of whom gave valuable service to the hospital in its formative years, and whose names were later to become household words in the community.

The book is helpfully illustrated with a good selection of portraits and old photographs of the first hospital, and its contents will be fully appreciated when the time comes for a well-integrated history of Australian medicine to be written.

The Principles and Practice of Medicine: A Textbook for Students and Doctors. By L. S. P. Davidson, B.A. (Cantab.), M.D., F.R.C.P.Ed., F.R.C.P. (London), M.D. (Oslo), and the staff of the Department of Medicine and associated clinical units of the University of Edinburgh; 1952. Edinburgh and London: E. and S. Livingstone, Limited. 9" × 6", pp. 930, with 57 illustrations. Price: 32s. 6d.

IN the preface of this book the author makes a virtual apology for the production of yet another text-book of medicine. However, the appearance of a new text-book of medicine from a British source is of great interest at a time when most would consider that there was a very real need for one. Such persons would be disappointed if in the present volume they expected to find an authoritative work of reference, but would no doubt be prepared to admit that the author has met the equal need for a good up-to-date concise account which might serve as staple diet for students and reduce the task of academic staffs in preparing didactic lectures.

This volume is the published course of lectures on the principles and practice of medicine for students commencing the years of clinical study at the University of Edinburgh. Its origin in so distinguished a school and the editorship of Professor Davidson give fair promise that it might fulfil the latter roles, and parts of it do. Professor Davidson expresses the hope that its production within the one department may confer upon the contributions by various staff members some measure of uniformity. This is to some extent realized with regard to style and composition, but the same cannot be said of quality.

Particularly likely to be valuable are the sections on the chronic rheumatic diseases and that on nutritional disorders, on neither of which subjects is there available in such small compass so authoritative and up to date an account. The section on the digestive system and that on blood are by the same criteria particularly satisfactory.

The use of a tabular arrangement is inevitable and will be much appreciated by students. However, in some sections it is carried to undue lengths with the listing and enumeration of matter not truly interrelated, a criticism of some importance since students will no doubt attempt its memorization. The small number of illustrations helps to keep the cost down, but their paucity is a distinct drawback to several sections. This disadvantage could of course be mitigated by its use in association with X-ray demonstrations, *et cetera*.

On reading it through one begins to long for a little relief from the unvaryingly nutritious character of the diet and greets with pleasure the leavening of history that lightens the section on nutritional disorders. There is indeed a conscientious coverage of virtually the whole field of medicine at a level suitable for students commencing their years of clinical study, but so desiccated is some of it that it is unlikely to be taken as anything other than an examination prophylactic, in water, three times a day after meals.

A Text-Book of Mental Deficiency (Amentia). By A. F. Tredgold, M.D., F.R.C.P., F.R.S. (Ed.), assisted by R. F. Tredgold, M.A., M.D., D.P.M.; Eighth Edition; 1952. London: Baillière, Tindall and Cox. 9" × 6", pp. 562, with 48 illustrations. Price: 37s. 6d.

A NEW EDITION of the standard work on mental deficiency by A. F. Tredgold is now available. This is the eighth edition, and in it the author has the assistance of his son, R. F. Tredgold, for the first time. The last issue was reprinted as recently as 1949, which indicates the demand for this book and should, in itself, be proof of the appreciation with which it is regarded by members of the medical profession. A great deal of new material has been included and several chapters have been rewritten. These include the chapters of ætiology and educational defect and disability. In spite of this it is rather surprising to find that the influence of maternal rubella in the early weeks of pregnancy in producing mental and physical defect is dismissed in a couple of lines, although this has been a common subject of discussion for many years wherever psychiatrists forgathered. Furthermore, the value of glutamic acid, particularly in combination with aneurine hydrochloride, is rejected, although there is well-authenticated evidence in the reports of such writers as Zimmerman, Quinn, Schwobel and others that there has been a gain of as much as 10·87 points in the intelligence quotient with this form of treatment. The authors' criticism of this therapy is based on the assumption that "primary amentia is the result of either a specific gene abnormality or of an inherent and germinal lack of potentiality for normal development". Surely this talk of the intangible and the imponderable must be regarded as a philosophy of negation. Also the McNaghten rules on criminal responsibility come under fire once more. It is the unfortunate habit of psychiatrists to criticize these rules, possibly because they were drawn up by judges at the request of the House of Lords and were based on common sense instead of being abstracted from the realms of academic phantasy. They have stood the test of time as they were first stated in 1843. Medical men have been given the opportunity of framing a better concept of medico-legal insanity, but numerous wordy discussions have failed to produce one.

The above criticisms are only, of course, on minor issues, for there is really little with which one can find fault in such an admirable and authoritative text-book. The whole field of mental deficiency is adequately covered within the compass of five hundred pages and much useful material is available for those who have taken up the cudgels on behalf of the unfortunates who cannot speak for themselves, nor express their gratitude when their unhappy lot is ameliorated to some degree by the efforts of good Samaritans. There are chapters on pathology and the physical characteristics of amentia and an interesting section on the comparison between the normal mind and the defective one. The chapter on *"idiots savants"* makes fascinating reading for anyone and may serve to explain the behaviour of certain of our legislators. The controversial subject of moral deficiency is more than adequately dealt with and recent advances in treatment and training are fully described. For those whose tastes lie in forensic psychiatry there is an excellent chapter on sociology with special reference to remedial measures and, in addition, as an appendix, the case

of Neville Heath, who sadistically murdered and mutilated a woman in an hotel, is reported and certain conclusions are drawn from the evidence which make stimulating reading.

The high standard of previous editions of this book has been maintained, and it has been brought completely up to date, although the need for a new edition did not arise so much from any spectacular strides made in this particular subject, but rather from the fact that the book so rapidly goes out of print, which, in itself, must be regarded as an indication of its popularity and value generally to the medical profession. Just as members of the legal profession are required to submit a statement that they have read a certain book on ethics before being admitted to the Bar, so should this book be made compulsory reading for aspiring politicians in order that they may be made aware to some extent of their responsibilities to that large group in the community which will never be able to show its appreciation by recording a vote in their favour.

Methods in Medical Research. Edited by A. C. Corcoran, Lyman C. Craig and Melvin Cohn; Volume V; 1952. Chicago: The Year Book Publishers, Incorporated. 8½" × 6", pp. 408, with 26 illustrations. Price: $7.50.

THE tendency for biochemical knowledge to play a leading part in many investigations has made it increasingly necessary to use reagents of known purity. In the last two decades, there has been great activity directed to devising techniques which could be used not only for analysing complex mixtures of high molecular weight compounds, but also for isolating one or more of the components in a comparatively pure state. Many of the techniques have now become widely used and it is most desirable at this stage that thorough expositions of the principles and laboratory equipment involved be recorded. This has been done in the fifth volume of "Methods of Medical Research", of which the editor-in-chief is A. C. Corcoran. It is a worthy successor to the previous four excellent volumes. Techniques have been reviewed dealing with physical properties—countercurrent distribution, paper chromatograph, electrophoresis and ultracentrifugation. On the other hand methods are described using a specific biological property, antigenicity —production of antibodies in experimental animals, separation of antibody-active protein from various animal sera by ethanol fractionation techniques, and analysis of the quantitative precipitor reaction both in liquid media and in gels. It is particularly fitting that details of these two approaches should be included in the one volume as it is now often found necessary to use many different methods to purify a particular protein. While the authors deal very thoroughly with their individual topics, it is a little disappointing to see that no mention is made of paper electrophoresis. Although the latter technique is still in its infancy and is open to a number of objections, a critical review of its possibilities would be welcome as the capital cost of the equipment for the alternative method, the classical moving boundary technique of Tiselius, remains a major obstacle to its general use. To our readers who are interested in medical science we strongly recommend this fifth volume which includes sections on "Methods for Separation of Complex Mixtures and Higher Molecular Weight Substances" (editor L. C. Craig), "Methods of Renal Study" (editor A. C. Corcoran), and "Immunochemical Methods for Determining Homogeneity of Proteins and Polysaccharides" (editor M. Cohn).

Progress in Neurology and Psychiatry: An Annual Review. Edited by E. A. Spiegel, M.D.; Volume VII; 1952. New York: Grune and Stratton. 9" × 6½", pp. 618. Price: $10.00.

As before, there are four main sections: "Basic Sciences" (84 pages), "Neurology" (180 pages), "Neurosurgery" (71 pages), and "Psychiatry" (200 pages). The section on the basic sciences has chapters on neuroanatomy, general and regional neurophysiology, neuropathology and pharmacology of the nervous system. Neurology is dealt with under the subheadings of clinical neurology, otoneurology, neurosyphilis, pædiatric neurology, epilepsy, autonomic nervous system, neuroendocrine relationships, electroencephalography, cerebro-spinal fluid, and radiology of the skull and central nervous system. "Neurosurgery" embraces peripheral nerve surgery, surgery of the spinal cord and column, cerebral trauma and traumatic infection of the central nervous system, brain tumours, vascular system and psychosurgery. "Psychiatry" consists of sections on clinical psychiatry, genetics, mental hygiene, forensic psychiatry, criminal psychopathology, child psychiatry, the neuroses, psychosomatic medicine, psychoanalysis, projective methods, group psychotherapy, shock therapy, psychiatric nursing and occupational therapy and, finally, rehabilitation. The chapters on neurosyphilis and criminal psychiatry are biennial offerings. Chapters on pædiatric neurology and genetics are included for the first time. The latter has been contributed by the Swedish workers, Sjögren and Hallgren, the first time this purely United States publication has sought contributors outside of its own shores. Publications from all over the world are, however, considered by contributors.

This is not a book to read casually. It is a massive collection of facts, useful only to the advanced worker or to someone following up a special interest in one of these fields. It is, therefore, a book for medical libraries and for neurological and psychiatric institutions, and no well-equipped library should be without this offering.

With respect to the average worker in these subjects, the price and the form of the volume render it a luxury. Annual publications, especially of this type, cannot help being but mere enumerations rather than studied reviews. If the latter were produced every few years, many of the transient befogging obscurities, inherent in an annual review, never need to be put before the reader, to his very great benefit. This rushing into print produces a mind which catalogues facts rather than considers them. Therein lies the danger. Parodying the well-known couplet:

> "What is this world, if full of data,
> We leave the summing-up till later?"

Notes on Books, Current Journals and New Appliances.

Laboratory Technique in Biology and Medicine. By E. V. Cowdry; Third Edition; 1952. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9" × 6½", pp. 414. Price: 48s. 6d.

THE third edition of this book appears four years after the previous edition of 1948. The considerable advances and changes that have taken place in that period have meant extensive revision and re-writing of the text. The author's policy has been to provide brief accounts of techniques with leads to others, and to make this information quickly available by alphabetical arrangement. The descriptions of some of the key techniques have been written by the investigators who introduced them, or by others who have had extensive experience in their use. The presentation of the material in alphabetical order is somewhat in the manner of a specialized encyclopædia and makes for ease and speed of reference. If a maximum value is to be obtained from the book, the author's introductory explanation and discussion should be read carefully.

Manual of Leprosy. By Ernest Muir, C.M.G., C.I.E., M.D., F.R.C.S. (Edinburgh); 1952. Supplement to the first edition. Edinburgh and London: E. and S. Livingstone, Limited. 8½" × 5½", pp. 16. Price: 2s. 6d.

Leprosy. By Leonard Rogers, K.C.S.I., C.I.E., M.D., F.R.C.P., F.R.C.S., F.R.S., I.M.S. (retired), and Ernest Muir, C.M.G., C.I.E., M.D., F.R.C.S. (Edinburgh); Addendum to the Third Edition; 1951. 8½" × 6", pp. 16, with two text figures. Price: 2s. 6d.

THE rapid advances in the treatment of leprosy during the past few years with the introduction of the sulphones have made it necessary to add to two important text-books on leprosy. This has been done by the publication of a supplement to the first edition of Ernest Muir's "Manual of Leprosy" and an addendum to "Leprosy" by Sir Leonard Rogers and Ernest Muir. In each of these the history of the development and introduction of sulphone therapy is described together with the mode of action, toxic effects, method of administration and dosage, and other necessary clinical details. The drugs principally considered are promin, "Diasone" and "Sulphetrone". Brief reference is made to certain other suggested therapeutic agents, including thiosemicarbazone, cepharanthin (by Rogers and Muir only) and streptomycin, as well as to prophylaxis with B.C.G. vaccine (by Muir only). The value of none of these is established. On the other hand, as Muir states, with the sulphones the worst sting has been taken out of the most dreadful of diseases, and we now have a powerful instrument not only for treatment of the individual patient but also for preven-

tion and control of leprosy. All who hold the two main volumes will need the respective brief supplements to bring the original up to date in a particularly important respect.

Anopheles and Malaria in The Near East. By H. S. Leeson, F.R.E.S., W. H. R. Lumsden, B.Sc., M.B., Ch.B., D.T.M., and H. J. Yofe, M.D., D.T.M., and T. T. Macan, M.A., Ph.D., F.R.E.S., with an introduction by Professor P. A. Buxton, C.M.G., F.R.S.; 1950. London: H. K. Lewis and Company, Limited. 9½" × 7", pp. 240, with 73 illustrations. Price: 35s.

THIS book is a memoir produced by the London School of Hygiene and Tropical Medicine, in which information is presented about malaria and its anopheline vector in Syria and Lebanon, in Transjordan and neighbouring parts of Palestine and Syria, and in Iraq and North Persia. The three regions are covered by separate papers prepared respectively by H. S. Leeson, by W. H. R. Lumsden and J. Yofe, and by T. T. Macan. In the introduction to the volume, P. A. Buxton, professor of entomology in the University of London, states that the papers are based, in the main, on surveys carried out by malaria field laboratories in the British army during the period of the last war. The material of the separate papers and the manner of presentation are individual, but the authors are understood to have consulted one another formally on many points.

Mosquito Behaviour in Relation to Malaria Transmission and Control in the Tropics. By R. C. Muirhead-Thomson, D.Sc.; 1951. London: Edward Arnold and Company. 9" × 6", pp. 228, with 16 plates and 22 text figures. Price: 30s.

DURING a period of duty leave in England, R. C. Muirhead-Thomson of the Colonial Medical Research Service prepared a book on mosquito behaviour in relation to malaria transmission and control in the tropics. He points out in his introduction to this book that at present the amount of information about mosquitoes and malaria is very great and is rapidly increasing. His book is an attempt to review present knowledge of one aspect of this wide field, namely, the general behaviour of those anopheles mosquitoes which are responsible for malaria transmission in the tropics, and to see what relation these activities bear to their importance as malaria vectors, to the distribution of their breeding places, and to modern methods of control. The book is divided into two parts which respectively deal with mosquito behaviour in two rather different ways. In the first part, which is concerned with the movements of mosquitoes in relation to mating, breeding and resting, the author records and reviews observations and experiments which have been made, without going too deeply into an analysis of the mosquito's complicated movements. Chapters are devoted to the following subjects: general activities in relation to mating, feeding and longevity; nocturnal activity and biting cycles; outdoor resting places and the exodus from houses; host selection; behaviour in relation to temperature, humidity and light; behaviour in houses in relation to control by insecticides. The second part is devoted to problems of the nature of selection of the breeding place, the emphasis being on the part played by simple physical and chemical factors in determining the behaviour of the female mosquito and of the immature stages. Chapters are devoted to the following subjects: selection of the breeding place; light, shade and mechanical obstruction; water movement and silt; water temperature; dissolved oxygen, organic matter and pollution; salt water and tidal influence.

Refresher Course for General Practitioners: Specially Commissioned Articles from the British Medical Journal: First Collection, October, 1949, to December, 1950; 1952. London: British Medical Association. 9" × 6", pp. 512, with about 75 illustrations. Price: 25s.

SOME fifty-five articles that have appeared in the *British Medical Journal* from October 15, 1949, to the end of 1950, under the heading "Refresher Course for General Practitioners", have been collected into a volume with the same title. The articles deal with a great diversity of subjects, but each is complete in itself and has been prepared by an expert in the subject dealt with. Although the series is intended primarily for general practitioners, it should fulfil the hope expressed in the preface by the editor of the *British Medical Journal*, Hugh Clegg, that is, that it will be of value not only to men in general practice but also to those in specialist practice who may wish to be kept informed of work in fields other than their own. The printing and binding are pleasing.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Side Effects of Drugs", by L. Meyler; 1952. Amsterdam: Elsevier Publishing Company. Distributors: Cleaver-Hume Press. 9" × 6", pp. 280. Price: 30s.

Intended as a work of reference.

"The 1952 Year Book of Obstetrics and Gynecology (July, 1951-June, 1952)", edited by J. P. Greenhill, B.S., M.D., F.A.C.S.; 1952. Chicago: The Year Book Publishers. 8" × 5¼", pp. 576, with 98 illustrations. Price: $5.50.

One of the "Practical Medicine Series of Year Books.

"Psychosomatic Medicine: Its Principles and Applications", by Franz Alexander, M.D., with a chapter on The Functions of the Sexual Apparatus and their Disturbances, by Therese Benedek, M.D.; 1952. London: George Allen and Unwin, Limited. 8½" × 6", pp. 300, with five text figures. Price: 21s.

An attempt to describe the basic concepts of the psychosomatic approach in medicine and to present existing knowlerge on the influence of psychological factors.

"Office Psychiatry: The Management of the Emotionally and Mentally Disturbed Patient", by Louis G. Moench, M.D.; 1952. Chicago: The Year Book Publishers. 8½" × 6", pp. 310, with 81 illustrations. Price: $6.00.

One of the "General Practice Manuals".

"The 1952 Year Book of General Surgery (June, 1951-May, 1952)", edited by Evarts A. Graham, A.B., M.D., with a section on anæsthesia, edited by Stuart C. Cullen, M.D.; 1952. Chicago: The Year Book Publishers. 8" × 5¼", pp. 670, with 203 illustrations. Price: $6.00.

One of the "Practical Medicine Series" of Year Books.

"Aids to the Analysis of Food and Drugs", by John Ralph Nicholls, C.B.E., D.Sc. (London), F.R.I.C.; Seventh Edition; 1952. London: Baillière, Tindall and Cox. 6½" × 4½", pp. 524, with one text figure. Price: 12s. 6d.

One of the well-known "Students Aids Series".

"Hypnosis in Medicine", by A. Philip Magonet, B.Sc., M.D., C.M.; 1952. London: William Heinemann (Medical Books), Limited. 7½" × 5", pp. 114. Price: 9s. 6d.

The author's object is to encourage doctors and medical students to explore the field of hypnosis.

"Visceral Circulation" (a CIBA Foundation Symposium), edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., assisted by Margaret P. Cameron, M.A., A.B.L.S., and Jessie S. Freeman, M.B., B.S., D.P.H.; 1952. London: J. and A. Churchill, Limited. 8" × 5½", pp. 292, with 68 illustrations. Price: 30s.

Contains all the papers and the informal general discussions of a symposium attended by representatives from eight countries.

"Fanconi and Wallgren's Textbook of Pædiatrics", edited by W. R. F. Collis, M.A., M.D., F.R.C.P., F.R.C.P.I., D.P.H., translator and co-editor, E. Kawerau, M.B., M.Sc., A.R.I.C.; 1952. London: William Heinemann (Medical Books), Limited. 10" × 6½", pp. 1124, with 441 illustrations, some in colour. Price: £7 7s.

Originally published under the title *"Lehrbuch der Pädiatrie"*.

"Poisoning: A Guide to Clinical Diagnosis and Treatment", by W. F. von Oettingen, M.D., Ph.D.; 1952. London: William Heinemann (Medical Books), Limited. 9¼" × 6", pp. 534. Price: 70s.

The purpose of the book is "to organize today's knowledge of the subject in a fashion which will most readily aid the practitioner and the internist".

"Any Questions?: A Selection of Questions and Answers Published in the British Medical Journal"; Second Series; 1952. London: British Medical Association. 7½" × 5", pp. 224, with one illustration. Price: 7s. 6d.

"A pointer to medicine in the making."

The Medical Journal of Australia

SATURDAY, FEBRUARY 14, 1953.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

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THE WORLD FOOD PROBLEM.

ONE of the most striking developments in recent times is the attention given to global nutrition. In the first World War investigations on the feeding of a whole nation became a military necessity, but when that menace was over, temporarily as was unfortunately the case, surveys of the state of nutrition were made amongst people who were not belligerents or likely to be such and the surveys took on a comprehensiveness which was new to science. One would like to think that an increasing spirit of humanism has been, at least in part, responsible for this revelation of the prevalence of underfeeding if not actual hunger. The Australian Commonwealth Department of Health published in 1947 the following: "It is evident from this survey that about half of the world's population was subsisting before the war at a level of food consumption which was not high enough to maintain normal health, allow for normal growth in children or furnish enough energy for normal work." Lord Boyd Orr, Mr. F. L. McDougall and our own Lord Bruce focused attention on the unequal distribution of food over the world; the Brazilian Josue de Castro startled civilized humanity with his "Geography of Hunger"; other books rapidly appeared on the same topic, and the possibilities of increasing the supply and of bettering the distribution of food were analysed by a number of experts in agriculture and economics. The Atlantic Charter and the Food and Agriculture Organization sponsored by the United Nations Organization were international developments recognizing and studying world food shortage.

One notable contribution to the literature of this important subject has been the Sir Richard Stawell Oration by Professor S. M. Wadham, Professor of Agriculture in the University of Melbourne, an oration which was delivered at a meeting of the Victorian Branch of the British Medical Association on October 1, 1952, and which is published in this issue at page 209. Professor Wadham deprecates the resort to scare tactics which so many writers on national nutrition have adopted. He begins with Malthus, whose "Essay on the Principles of Population" appeared in 1798. The question arises whether it was not high time for complacent folk to be properly scared, and this the work of Malthus, written with scientific temper, certainly did. According to H. G. Wells his book was "shattering". Professor Wadham deals quite gently with Crookes, who as president of the British Association for the Advancement of Science in 1898 uttered a warning that by 1931 there would not be enough nitrogen available for wheat and consequently not enough wheat to feed the nations. Crookes had no botanical or agricultural knowledge and so was unaware of the nitrogen-fixing powers of certain leguminosæ; also he completely failed to foresee that the plant breeder alone would make enormous additions to land capable of producing wheat and other food plants. As a physicist he should have envisaged the possibility of turning the inert nitrogen of the air into a compound assimilable by plants, and this he failed to do. So 1931, the year of his predicted famine, witnessed a surplus of grain!

The historical part of the address gives a very clear picture of the advances in agriculture made in the eighteenth century. In the early years of this century Jethro Tull "invented the seed drill and the system of growing farm plants in rows, thus making it possible to keep the land between the rows free from weeds"; animals were improved by breeding methods, for instance Bakewell "increased the size of the average sheep from that of a collie dog"; root crops as fodder for cattle started with "Turnip" Townshend (died 1738) and enormously improved both the supply and quality of milk and meat. Particularly illuminating is Professor Wadham's treatment of the system of enclosures, mostly in the reign of George III. Many readers of history and many historians refer to this agrarian revolution as pure spoliation and victimization of the innocent small landholder and peasant; but it is convincingly demonstrated that without such enclosures the breeding of pedigree stock would have been impossible, and it is precisely here that British genius soon found an outlet for a very special faculty which has enriched the world and will continue to do so. Naturally in such a comprehensive survey the trend of population must be analysed, and this is done with restraint. "It seems clear that the population in Europe, America and Asia is certain to increase although perhaps not at the rate at which the gloomier prophets imagine it will." How can this increase in the number of mouths to be fed be met? The first practical consideration is in raising soil fertility. "It may well be that the agricultural historian of the future will describe the present decade as the opening phase of the era of the practical application of soil chemistry." Other procedures are described, and here it may be remarked that an admirable list of such procedures is given in the book "Four Thousand Million Mouths", edited by F. Le Gros Clark and N. W. Pirie. In addition to these Professor Wadham suggests three important avenues of research: first, the cause of the precipitation of rain—it may well be that future generations will look back with pity on us today being dependent on an irregular and unpredictable supply of rain; secondly, the trapping of solar energy, and here one may remark that the, today, useless deserts

of central Australia may in the future become a gigantic source of available horsepower; thirdly, there is the production of protein by yeasts, a method which seems more practical at this time than protein synthesis in the laboratory or factory.

Professor Wadham, as a trained economist, naturally does not miss the importance of keeping the economic position always in view. He attacks the proposal, all too frequently expressed today, that Australia should restrict her efforts to growing food and leave secondary industry alone. He shows clearly that Australia cannot become the granary for feeding the East. Perhaps the most important contribution made by Professor Wadham to the problem of world feeding is in his insistence on the social factor which is the main consideration in Asiatic countries. He tells us that in the East the masses of population are on about the same level of knowledge as Britain in the early eighteenth century; that the advent of democratic government means, at first, greater difficulties in getting reforms carried out, and thirdly that there are religious taboos which seriously interfere with the application of improved agricultural methods. He might have quoted the unemotional *Whitaker's Almanack* in connexion with India:

> The Hindoo veneration for the cow imposes a barrier to the exploitation of the most valuable animal known to man and hinders the growth of profitable husbandry. . . . The practice of burning cow-dung as household fuel instead of allowing it to enrich the soil involves enormous loss to Indian agriculture. As animal life is sanctified by Indian religion the cultivator is handicapped in protecting his crops against such pests as monkeys, flying foxes, jackals, porcupines and rats.

The interesting conclusion is reached that every suggested solution of the global nutrition problem has sociological barriers which will be more difficult to overcome than the technical barriers. This is particularly true for the East, but it is also true for Occidental countries. In the Australian family of the future the distribution of income over food, adornment and pleasure may have to be modified. If lotteries, attendance at games and films and the sale of women's hats are to be modified in order that our high standard of nutrition be maintained, will the people as a whole really suffer? Professor Wadham is to be congratulated on this fine effort, which maintains, if it does not indeed enhance, the prestige of the Sir Richard Stawell Oration.

Current Comment.

VITAMIN B_{12} IN THE TREATMENT OF VIRAL HEPATITIS.

ONE of the well-known epidemic diseases which has for generations been a troubler of armies is infective hepatitis, or, as more recent knowledge justifies us in calling it, viral hepatitis. This being so, it is not surprising to learn that during the year 1950-1951, 2541 of the United Nations' military personnel were treated at a special United States Army Hepatitis Centre in Japan. Robert E. Campbell and Francis W. Pruitt, of the United States Medical Corps, have made a preliminary report[1] on the results of treatment of men with viral hepatitis by the administration of vitamin B_{12}. Pruitt had previously noted that men operated on for war wounds received in the Korean War were notably improved in appetite after operation by the use of this vitamin. Therefore they planned an inquiry into the treatment of hepatitis, in which they divided their patients into three groups. The criteria for diagnosis were the same in all groups, being briefly the presence of the characteristic signs and symptoms of hepatitis, following a sudden onset with chills and fever, and clinical jaundice. The duration of illness was similar in all groups; so too was the average clinical severity, though the authors remark that the less severely ill were subject to rather less supervision and therefore introduced a certain degree of complication by exposing themselves to somewhat more exertion than was desirable. It will be recalled that one of the clinical observations of the 1939-1945 war concerning hepatitis was that undue exertion, particularly some degree of actual severe fatigue or exhaustion, had an unfavourable effect upon the rapidity of recovery and appeared to invite relapse in some instances. None of the patients in the authors' three groups had any history which suggested the possibility of post-inoculation jaundice. The possibility of serum hepatitis could not be completely excluded amongst soldiers of course, as they are subject to prophylactic procedures, but it was not a disturbing factor in this investigation. The unfavourable effects of alcohol were also considered and were excluded as far as possible. The significant differences between the three groups of patients lay in their treatment. Group 1 received brewer's yeast and multivitamin tablets three times daily in addition to a diet containing 150 grammes of protein, 350 grammes of carbohydrate and 100 grammes of fat, and as a daily extra eight ounces of a protein-rich milk formula. The patients' trays were inspected and the caloric content of any unconsumed food was estimated. Any deficit was made up by more protein-rich milk mixture or 10% glucose given into a vein. It will be seen that the authors are fully justified in stating that all the patients had a daily intake of 4000 Calories. All were kept at rest in bed, but were allowed to go to the bathroom. Group 2 patients received the same diet, and deficits in diet were made up if this was considered necessary during the initial period of anorexia. The patients in Group 3 were treated just as those of Group 2, with the exception that they were given vitamin B_{12} by mouth in doses of 30 microgrammes daily. A subgroup of ten patients received the vitamin by the intramuscular route for the first five days. In choosing patients for inclusion in these groups the serum bilirubin content of the blood was taken into account, so that the maximum total serum bilirubin values fell within the 1 to 5 milligrammes range, the 5 to 10 milligrammes range and the 10 to 15 milligrammes range or over in practically equal numbers within each group. The groups were also equal in numbers, each containing 100 men, making a total of 300 for the whole series. Questions of discharge from hospital and convalescence were decided by clinical data and weekly estimations of the serum bilirubin content. When this still remained relatively high, observations were made of the liver function as shown by the bromsulphthalein test. The authors' findings for the series were as follows. Those patients who received vitamin B_{12} regained their normal appetite and the normal size of the liver more rapidly than those in the other groups. The men treated with this vitamin also showed normal findings for the serum bilirubin content after the tenth week of illness, whereas those in Group 2 required eighteen weeks and those in Group 3 twenty-four weeks to return to normal. The mean durations of illness calculated by the return of liver test results to normal were 48·7 days for the vitamin-treated men and 54·4 and 56·7 for the others. Relapses occurred more frequently amongst the two last-mentioned groups also. The authors discuss the theoretica lconsiderations involved and point out that experimental work indicates that vitamin B_{12} is concerned with the metabolism of nucleoprotein, and therefore liver repair, and also establishes some connexion between this vitamin and folic acid. They admit that they cannot claim full statistical validity for all their conclusions from the figures presented, but they modestly conclude that their results are suggestive and give warrant for further investigation. Certainly the work is suggestive, and in conclusion it may be remarked

[1] *Am. J. Med. Sc.*, September, 1952.

that one finding of the authors is striking; they record that the effect of vitamin B_{12} when given intramuscularly to patients suffering from severe anorexia was to produce a dramatic increase in appetite.

FURTHER WORK ON ANTICOAGULANT DRUGS.

THE wide interest now taken in clinical research has been reflected in the well-organized and large-scale investigations which are designed to yield reliable information in a reasonably brief time. The American Heart Association appointed a Committee on Anti-coagulants which made a report in 1948 evaluating these substances in the treatment of myocardial infarction, and a subsequent report on the use of dicoumarol is under preparation. Over 1000 patients were studied in this series, and the value of concerted effort in such researches is of course apparent. So too is the value of financial assistance. The Kress, the Albert and Mary Lesker, the Lillia Hyde and the Hampil Foundations have recently made grants to the American Heart Association to assist in the carrying out of a further research on the results of tromexan and dicoumarol in the treatment of thrombo-embolic conditions. The report on this work has now been published by L. A. Scarrone, D. F. Beck and I. S. Wright, and in this 514 patients have been studied and the results of therapy with tromexan have been estimated after 6642 days of its use and contrasted with those observed after 5006 days of the use of dicoumarol.[1] Seven hospitals cooperated in this investigation and followed an agreed plan, which provided that all patients admitted to the cooperating units with a diagnosis of a thrombo-embolic condition were treated with one or other of the test drugs unless some valid contraindication existed. Two hundred and sixty-two of the patients were found to be suffering from myocardial infarction, 87 from venous thrombosis, 41 from pulmonary infarction, and 20 from other forms of arterial thrombosis or embolism; in addition there were 104 patients who were receiving anticoagulants for prophylactic purposes. The length of time over which records were kept was to some extent controlled; for patients treated for myocardial infarction such periods were at least six days. As far as possible, tromexan was used on patients admitted on even days of the month and dicoumarol for those admitted on odd days. Statistical survey ensured that estimates of the degree of seriousness of the clinical condition rested on as sure a basis as possible; this applied also to the sampling of case histories, in which qualifying statements prevented the inclusion of misleading case records. It is evident that in investigations being carried out in a number of widely separated institutions the administrative and statistical methods need to be soundly based. A possible error lies in the different methods used for the estimation of prothrombin, but here the standards for normal blood were used as a base line in each hospital. In the report simple graphic methods are used to illustrate the various aspects of the results. The important findings thus made clear are the control of prothrombin levels, the percentage of days spent under the influence of anticoagulant drugs, the number of thrombo-embolic episodes observed under differing conditions of the research, and, similarly, the number of hæmorrhagic episodes observed in relation to the specific therapy. It is of interest also to see graphs illustrating the effects of antibiotics and of shock on the action of anticoagulants. A section of the report is devoted to a study of the deaths occurring during the period over which the selected patients were followed. Forty-four patients died, mostly within six weeks of the onset or the beginning of treatment. Special attention was devoted to the study of deaths which might logically be ascribed to the anticoagulants themselves. The authors consider that tromexan was probably a lethal factor in two cases. In one of these the patient was admitted for investigation of abdominal pain, and after a fortnight suffered a cerebral accident for which tromexan was given; the patient died some days later from subarachnoid hæmorrhage. The other patient had coronary disease and was suspected of having an infarction, but she died suddenly and was found to have a healed infarct around which further bleeding had occurred. In such cases the difficulty is not so much therapeutic as diagnostic. Four other patients in the series died from hæmorrhagic lesions while under treatment with combined drugs, "Paritol", a substance resembling heparin, and dicoumarol. All these fatal cases illustrate the possible dangers of drugs whose action is admittedly irregular at times, and subject to individual variations. The chief conclusions reached were as follows. Tromexan achieved a more rapid initial prolongation of prothrombin time than is seen with dicoumarol, which is an advantage in treatment. Tromexan also permits a more rapid return to former levels on cessation of the drug, also an advantage. It seems likely, however, that the control given by tromexan is less reliable in the lower ranges. In other respects there appears to be little difference between the two drugs, especially when the conclusions are drawn only from cases of myocardial infarction and not from those of other types of thrombo-embolism. The proportion of patients dying within six weeks of onset was 14·2% when dicoumarol alone was used, and 10·8% when tromexan alone was used. It is probably fair not to attribute too much importance to these figures, but whichever drug is used the patient must be carefully watched; the complications, though potentially dangerous, may be reduced not only in number but also in seriousness by the exercise of great care.

An interesting pendant to this research is an article by F. W. Preston, W. R. O'Connor, C. E. Thompson and E. N. Christensen, in which a report is made on the clinical use of phenylindanedione, another member of the coumarol series.[1] Forty-four patients suffering from myocardial infarction were treated, as well as 20 with thrombophlebitis. Treatment was controlled by regular estimations of the prothrombin activity. Fall of the blood prothrombin occurred within twenty-four hours, and return to the former level took place within three days of the final dose. Some degree of variation of these figures was of course observed. Two minor hæmorrhagic episodes occurred, but these did no harm, though they illustrated the possible danger when the prothrombin level dropped unduly, as it may, with little warning. The recommended dose is 150 to 200 milligrammes at the start of treatment, with a maintenance dose of 50 milligrammes twice daily. Resistant patients were not observed in this series, and the authors' clinical impressions were very favourable. It is an obvious advantage if an anticoagulant is rapid in action, brief in its period of effect on the prothrombin level, and regularly dependable. Anticoagulants are now established in the handling of myocardial infarction; it is to be hoped that research will continue along similar lines, in this country as well as overseas.

[1] *Circulation*, October, 1952.

"DRAMAMINE" AND POST-OPERATIVE NAUSEA.

SEVERAL drugs of the antihistamine type have been used with apparent success in the prevention and treatment of seasickness, "Dramamine" being perhaps the most prominent. A natural extension from this is its trial for the control of post-operative nausea and vomiting. W. Brewster Wolfe[2] points out that although there have been isolated reports in correspondence of its use in this way, no large controlled series of cases has been reported. Wolfe has carried out a study with 250 unselected adult patients undergoing surgical operations, just over half the group being used as controls. "Dramamine" was given orally in doses of 100 milligrammes at the time of pre-operative medication, with another 100 milligrammes after operation as soon as swallowing was possible. The results were not conclusive, but were suggestive. "Dramamine" appeared to reduce post-operative nausea and vomiting, particularly when these were of severe degree, but the effects were not considered good enough to offer warrant for routine use of the drug.

[1] *Ibidem.*

[2] *Ann. Surg.*, August, 1952.

Abstracts from Medical Literature.

PÆDIATRICS.

Values for Fæcal Urobilinogen in Childhood.

S. D. MILLS AND H. L. MASON (*Am. J. Dis. Child.*, September, 1952) have determined the values for fæcal urobilinogen in a series of 73 children who did not have hæmolytic disease, and in a series of 20 children who had hæmolytic disease. Estimations were made on a ninety-six-hour collection specimen by Watson's method. The daily mean values for the controls and for those with hæmolytic disease, respectively, were as follows: under one year, 3·8 and 15·1 milligrammes; ages one to four years, 10·9 and 218·5 milligrammes; ages five to nine years, 24·4 and 331·7 milligrammes; ages ten to fourteen years, 45·2 and 205·0 milligrammes. The authors conclude that the determination of the value for fæcal urobilinogen offers a practicable means of demonstrating abnormal hæmolytic activity in children.

Ineffectiveness of Carob Flour in Infantile Diarrhœa.

S. H. WALKER (*Am. J. Dis. Child.*, September, 1952) reports a controlled study of 47 cases of infantile diarrhœa in which alternate patients were treated with carob flour ("Arobon"). He concludes that despite a distinct effect upon the character of the stools, there was no significant effect upon the course of the disease state and the resultant fluid loss. Some protection of the buttocks from irritation by stools was noted.

Endocardial Sclerosis.

R. W. BLUMBERG AND R. A. LYON (*Am. J. Dis. Child.*, September, 1952) use the name "endocardial sclerosis" for the condition also known as "fœtal endocarditis" and fibroelastosis. Their review was confined to patients without congenital cardiac defects which might influence the course of the disease, who had at *post mortem* a whitish coating of fibro-elastic tissue on the endocardium. They consider it to be one of the commonest types of fatal heart disease in infancy. Cardiac enlargement of considerable degree was present in almost every instance. Symptoms of circulatory failure, notably dyspnœa, tachycardia, coughing and vomiting, were common. Murmurs were atypical and inconstant. Cyanosis usually occurred only as a terminal event. In many infants the symptoms of circulatory failure appeared with suddenness and severity, terminating in death of the patients within a few days. Other infants survived the initial attacks, but suffered recurrences until a final episode resulted in death.

Irreducible Intussusception.

M. WHITE AND W. M. DENNISON (*Brit. J. Surg.*, September, 1952) discuss the results of treatment of irreducible intussusceptions in infants by ileocolostomy without removing the irreducible mass. In a series of 16 cases the mortality rate was only 25%, even though all the patients were very ill on admission and required correction of dehydration or blood loss before operation. The authors state that although the irreducibility is at first essentially due to œdema and congestion which have followed vascular occlusion, gangrene usually affects only the inner layer for a time, whilst the ensheathing layer remains viable. Death occurs from intestinal obstruction and toxæmia, and not from peritonitis in a case of unreduced intussusception. If the intussusception is forcibly reduced, the bowel may be so damaged that it never recovers, and perforation ensues. On the other hand, if the ensheathing layer is already gangrenous, the mass is fixed outside the abdomen after anastomosis is performed. When the irreducible mass is returned to the abdomen, it may pass as a slough, or it may reduce itself, or it may fuse *in situ* and become recanalized later. In none of the 12 cases was it possible to see any radiographic evidence of the short circuit two months after operation.

Accident Prevention and Children.

H. J. DIETRICH (*Am. J. Pub. Health*, July, 1952) states that in America accidents account for more deaths among children and more permanent disability than any other cause. The principal causes of accidental deaths are burns, conflagration, drowning, falls and poisoning. The age group distribution of these five causes shown graphically suggests that as the child's intelligence and experience develop the number of deaths from accidents decreases from a maximum in the one to two years age group. The author, therefore, suggests that during the first year of life the child must be given complete protection from the causes of accidents. At the age of five or six years the child will be attending school and away during the day from family protection. His avoidance of accidents will then depend on what he has been taught. Between two years and five years of age the child should be gradually educated to appreciate and avoid conditions that may lead to accidents, and that protection and education should be systematically and progressively related to the age of the child. Physicians should direct the minds of the parents away from the minor problems of childhood to the major problem of accident prevention. Protection should be gradually reduced as the child becomes educated and experienced in the conditions that lead to accidents. The author suggests that the application of such a theory may be logically looked upon as immunization. Protective devices are then analogous to passive immunization. They represent expedients against serious temporary or unusually subtle hazards. The educational efforts, in contrast, must be likened to active immunization. With each different antigenic response, and frequently synergistically, the human animal is better able to cope with the various accident threats. Continued and more sophisticated educational efforts can be likened to booster doses.

ORTHOPÆDIC SURGERY.

Compression Arthrodesis of the Knee.

JOHN CHARNLEY AND S. L. BAKER (*J. Bone & Joint Surg.*, May, 1952) have during the last three years performed arthrodesis on 67 knees of 63 patients, using the compression technique. Compression was applied for approximately four weeks after operation, and then walking was allowed in a plaster cylinder. Osseous union occurred in 66 cases. The case in which fusion did not occur was one of proved Charcot joint due to *tabes dorsalis*; the authors doubt whether the neuropathic element was entirely the cause of failure, as compression was lost after two days by the spontaneous fracture of one of the pins, and the knee had to be remanipulated, another pin being introduced seven days after the first operation. Among the successful cases was one of proved neuropathic joint due to congenital *tabes dorsalis*. In 74% of cases a clinically solid result was achieved when compression was removed four weeks after operation. In 17 cases slight mobility was present when the compression clamps were removed four weeks after the operation. The authors removed specimens from the arthrodesis line in seven cases four weeks after operation and in one case eight weeks after operation, in order to study the nature of early union after compression arthrodesis in the knee. They state that the striking features of the repair callus of the line of union were its regularity and its small amount. The absence of cartilage or chondroid tissue is good evidence of virtual immobility, and a strip of dense connective tissue as narrow as that seen in the specimens examined could allow little movement between the opposing surfaces. The authors consider that in arthrodesis of the knee joint there are two large weight-bearing surfaces composed almost entirely of cancellous bone, the cortical bone in this region being thin and amounting to no more than the thickness of a few trabeculæ. If the tissue is healthy and the newly formed callus is not disrupted, the conditions for rapid union should be optimal. Only a small amount of callus is needed to fix together the trabeculæ of the opposing surfaces, and for this purpose it can be produced in four weeks.

Nerve Compression by Simple Ganglia.

D. M. BROOKS (*J. Bone & Joint Surg.*, August, 1952) states that in the 13 cases reported of nerve compression by a ganglion a connexion between the ganglion and the neighbouring joint was established in many instances at operation. He suggests that the so-called ganglia of the nerve sheath and simple ganglia are anatomical varieties of the same entity. He states that the predominant symptoms in half the cases was pain in the distribution of the nerve. Next in frequency were muscle weakness or symptoms of numbness and tingling. The treatment of choice is excision of the ganglion, and when there is connexion with the neighbouring joint, cauterization of the stalk. In those cases in which the ganglion has been firmly adherent in the nerve, or has penetrated the nerve

sheath, puncture is probably the safest course of treatment, even though it may mean a recurrence later, because damage to the nerve fibres can occur during excision. Recovery of sensibility after operation was good. Motor recovery was poor when damage to motor fibres occurred during excision of the ganglion or when paralysis had been present for more than eighteen months.

Subcutaneous Achilles Tenotomy for Intermittent Claudication.

D. I. SCHWARTZ, L. L. PENNOCK, C. J. PESSOLANO AND D. S. LITTMAN (*J. Bone & Joint Surg.*, July, 1952) have performed subcutaneous tenotomy of the *tendo Achillis* in ten patients between the ages of fifty and sixty-two years who were suffering from *arteriosclerosis obliterans*. Nine of the ten patients had bilateral involvement. Duration of the claudication before surgery ranged from one to seven years. Each patient could walk only a short way before claudication occurred. Oscillometric readings in every case revealed much impairment. All patients had had conservative treatment without sufficient relief of symptoms. Superficial thrombophlebitis developed postoperatively in three cases, but responded well to anticoagulant therapy; after the inauguration of prophylactic anticoagulant therapy it did not occur again. The authors noted considerable clinical improvement in every instance, and every patient was satisfied with the results of operation. The pain of intermittent claudication in the calf had disappeared, although the patients reported that they tired generally and had to rest after walking varying distances. The authors state that this is not surprising in view of the age group of the patients and the condition of their cardiac, peripheral vascular and muscular systems. The gait was always altered after the operation, but with proper instruction a good gait was attained within a reasonably short period of time and was maintained without the aid of braces. The visible defect in the Achilles tendon remained, but fairly good plantar flexion was noted to be present in a matter of months after surgery. The authors conclude that this procedure is a valuable aid in the treatment of intermittent claudication. It can be carried out in a few minutes with minimal risk and requires no cooperation on the part of the patient except his willingness to receive instructions regarding balance and gait. While the procedure does nothing to improve the blood supply to the lower extremities, it does eliminate the ischæmic pain in the calf muscles.

Supracondylar Fracture of the Humerus.

ANDREAS HOYER (*J. Bone & Joint Surg.*, July, 1952) reviews a series of 52 cases of supracondylar fracture of the humerus; 32 were treated by skeletal traction, 16 by closed reduction and application of plaster and four by application of a dorsal plaster slab. He states that the results of treatment of supracondylar fracture of the humerus by skeletal traction were superior to those obtained by treatment with manipulative reduction and plaster. Skeletal traction is applied with the patient under general anæsthesia. A small Schmerz hook-clip is inserted in the olecranon through two small skin incisions. Each spike of the hook-clip is hammered into the bone. The fracture is then reduced, preferably under the fluoroscope, and the arm is placed on an abduction splint. Traction is maintained by means of rubber tubing. Any tendency toward backward displacement of the distal fragment can be corrected by altering the traction in a more anterior direction. A pressure pad may be placed on the splint to prevent the arm from sliding forward. Increased flexion of the elbow joint will also counteract backward displacement of the distal fragment. The fracture is repeatedly checked by X-ray examination. If the position is not fully satisfactory, corrections may be made easily. As a rule minor displacements persisting after the primary reduction disappear with sustained traction without further adjustments. Traction is continued for an average of twenty-one days. Then active movements are begun. Passive stretching and massage, on the other hand, are forbidden. Among the patients treated by traction, two had paresis of the radial nerve and two paresis of the median nerve, but in all cases the paresis disappeared during the stay in the hospital. One patient had an incipient Volkmann's ischæmic contracture when admitted to hospital, but this disappeared two days after reduction of the fracture by the application of traction. In one case superficial infection at the site of the traction hook was recorded on the twentieth day; the traction was discontinued, and the infection subsided without special treatment. The author concludes that only fractures without displacement or those with backward displacement of slight degree should be treated by the application of a plaster cast, or by closed reduction and plaster fixation. For fractures with more extensive displacement, traction or operative treatment seems preferable. The results of treatment by traction appear to be as good as those obtained by operative treatment. Since traction is a much simpler procedure than an operation and is fraught with less risk of complications, the open reduction should be resorted to only when it is obvious that the traction treatment will fail to give a satisfactory result. This is rarely the case.

Ilio-Psoas Transfer for Weakness of the Hip Abductors.

W. T. MUSTARD (*J. Bone & Joint Surg.*, July, 1952) states that the ilio-psoas, lying as it does on the inside of the pelvis, has the necessary muscle bulk to equal the hip abductor muscles, and the short fibres of the iliacus suggest that it would add to the power of stabilization rather than increase the range of motion. The innervation of the muscle is such that in poliomyelitis its anterior horn cells are often spared when those of the hip abductors are involved. Anatomically, its origin and insertion are very similar to those of the hip abductor muscles, except, of course, that the situation is reversed. The origin of the iliacus inside the pelvis is almost identical with the origin of the abductors outside the pelvis; the lesser trochanter is about the same distance from the iliac crest as is the greater trochanter. The author uses an ordinary Smith-Petersen incision. The ilio-psoas (with its insertion into the lesser trochanter) is transferred laterally to the shaft of the femur below the greater trochanter. The muscle belly is made to pass through a notch cut in the wing of the ilium between the anterior superior and anterior inferior spines and fulfils the usual requirements of a tendon transfer. The author states that the patient must have a good or normal *gluteus maximus* to assist in pelvic stability, and a normal sartorius to act as a hip flexor. A good or normal *rectus femoris* aids somewhat in hip flexion. During the past two years twelve patients have undergone this operation. In seven cases the hip stability has been improved, and in one the result can be considered excellent. The author concludes that transferring the ilio-psoas through the pelvis restores abductor power to the hip. Flexion is possible to a right angle if a normal sartorius is present. If the usual rules of tendon transfer are observed, patients are improved both subjectively and objectively; and if good or better power develops in the transferred muscle, the Trendelenburg gait is considerably lessened.

Hallux Valgus and Hallux Rigidus.

G. BONNEY AND I. MACNAB (*J. Bone & Joint Surg.*, August, 1952) have made a survey of 518 operations for *hallux valgus* and *hallux rigidus*. They state that with *hallux valgus* in the adolescent, operations aimed at correcting the primary deformity usually of *metatarsus primus varus* are justifiable when correctly performed, though the exact form such operations should take still requires further study. Of the 54 feet on which metatarsal osteotomy had been performed, no less than 12 required or had to have further operative treatment. The authors state that for adults with *hallux valgus* arthroplasty offers a reasonably good solution in the well-chosen case. In this series, analysis of functional and anatomical results shows that there is nothing to choose between the results following Keller's and those following Mayo's operation. Arthroplasty appears to have no constant or predictable effect on pre-existing metatarsalgia or on producing it as a new feature. Metatarsal osteotomy has, in the adult, only a limited sphere of application. The authors believe that in the treatment of *hallux rigidus*, arthroplasty alone has no place for adults with the usual primary condition of hyperextension of the first metatarsal, or for adolescents. They suggest the following plan of operative treatment when adequate conservative treatment has failed to give relief to patients with *hallux rigidus*. For an adult patient without an elevated first metatarsal, arthroplasty has a fair chance of success, but the operation most certain of success is arthrodesis. For the adult patient with an elevated first metatarsal, the combination of arthroplasty with osteotomy of the first metatarsal to correct the elevatus deformity is a rational procedure. For an adult patient with polyarthritis or with symptoms referable solely to an exostosis, excision of the exostosis is all that is required—in the former to permit the comfortable fitting of surgical shoes, and in the latter to remove a painful encumbrance. In the adolescent case not regressing spontaneously, the operation for depression of the first metatarsal by osteotomy does, in some cases, restore joint function.

Special Articles for the Clinician.

(CONTRIBUTED BY REQUEST.)

LII.

EARLY DIAGNOSIS OF THE PSYCHOSES.

WHAT is a psychosis? The psychoses have been variously described as major mental disorders in contrast to the "minor" psychoneuroses, or as conditions in which there is a more or less profound disturbance of subject-object relationships or of attitude to the environment. The Freudians refer to the degree of departure from the reality principle and to the depth of regression to more childlike or primitive reaction patterns. In more general terms, psychoses are equated with the insanities and the psychotic patient is said to have lost insight. Since the present writer contributed an article on this subject to THE MEDICAL JOURNAL OF AUSTRALIA on December 27, 1930, the effectiveness of physical treatments, convulsive and insulin-coma therapy, has caused the early diagnosis of affective and schizophrenic psychoses to be resolved into the determination of symptoms and signs which justify the application of these methods at a stage when the patient is not yet strictly speaking psychotic. Often the determination of the precise variety of psychosis may be left until the effects of active physical therapy have been observed.

Any psychosis may be said to be compounded out of two types of disturbed functions: (*a*) the ability to perceive and judge in accordance with accepted social usage, (*b*) the ability to feel in a normal manner. These two types of functions are associated respectively with the forward projection areas of the cerebrum and the hypothalamic and thalamic systems. The most common psychoses—affective and schizophrenic states—still lack a demonstrable pathology, though we have good reason to believe that convulsive and insulin-coma therapy stimulates sluggish hypothalamic centres, and with more certainty excessive emotional tensions may be relieved by severing tracts between the medial nucleus of the thalamus and forward areas.

History Taking.

Since there are no laboratory tests of the psychoses and the only physical signs are abnormalities of total behaviour rather than of reflexes, the taking of the history is of particular importance, especially when early diagnosis is attempted. No intensive psychological investigation is practicable in general practice, but a few points may be emphasized. Whether the patient or the relatives are seen first depends on circumstances, though usually the practitioner has some idea of why he is asked to see a patient.

The Patient.

Emphasis should be laid on what the patient feels is the matter with him. How does he feel different from what he would like to be? In what way have his usual mode of life, activities, social intercourse, working capacity and recreations been modified as a result of his condition? What is the patient's personal problem? In the course of quite a brief conversation on personal topics the patient's demeanour will be observed, and deficiencies in comprehension, memory and judgement will often become apparent. The trend of further inquiry will be towards the variety of mental disorder presented by the patient. Except in the most obvious cases the patient should, and if certification is proposed must, at some stage be seen alone. When prior information indicates that the patient may be paranoid, it is usually wise to interview him before seeing the relatives, so as to make him feel that you are listening to his story without prejudice.

The Relatives.

Why have they brought the patient or called the doctor in? What changes have they noted in disposition, mood or behaviour? If the patient has been regarded as queer or out of sorts for some considerable time, what developments have led to the seeking of advice. Has the patient exhibited suicidal or aggressive tendencies? When the doctor has been summoned as a matter of urgency he will find the relatives anxious, and often exasperated, and unsympathetic towards the patient. When possible the most reliable informant should be singled out and taken aside, so that a history can be obtained in a reasonably calm atmosphere. The car is very suitable for such an interview. One should remember that some at least of the patient's family may be tarred, albeit more lightly, with the same psychopathic brush as the patient. Records should include names and addresses of informants, and their information should be distinguished carefully from what the doctor has heard from the patient and himself observed.

Manic-Depressive Psychosis.

The essential features of the manic-depressive group in the Kraepelinian system are the attacks of morbid depression or elation with recovery but tendency to recurrence. Some individuals exhibit fluctuations of mood—cyclothymia—which only occasionally and perhaps never reach a pitch which calls for treatment.

Mania.

Restlessness, which may or may not be directed into useful channels, and above all an unusual sense of well-being and satisfaction are the dominant features of this phase of the manic-depressive psychosis. In mild cases, hypomania, the patient retains a fair capacity for social adjustment, although he may be irritable, intolerant of those who do not keep pace with him, and annoyingly interfering, self-assertive and overbearing. Broken and reduced sleep and loss of weight are not unusual. The attack or phase develops over a period of weeks, less commonly in the course of a few days, and either takes the form of an exaggeration of the patient's natural exuberant, extravert attitude or more strikingly constitutes a complete reversal of a retiring, quiet and diffident disposition. A history of previous attacks of morbid elation or depression makes easier the recognition of a developing manic state.

Depressive States.

Depressive states call for special mention because of their relatively high incidence compared with other psychoses, the variety of their early manifestations, their inherently good prognosis, and above all the great reduction in the period of invalidism by means of convulsive therapy. All gradations are seen from mild "psychoneurotic" depressions up to typical psychotic melancholia. The relationship to the manic-depressive syndromes must be determined more on the history than on any specificity of symptoms and signs, and the same applies to the use of the term "reactive".

A depressive state is one in which a depressive mood of sadness, grief or dejection persists and is out of all proportion to any apparent experience or environmental factor. Many if not most morbid depressions are endogenous, that is, dependent on internal changes rather than on external circumstances. The essential feature, often clouded by superimposed, associated or unconnected symptoms and signs, is, of course, the emotional depression. Like Hamlet, the depressive continues to lament,

> How weary, stale, flat and unprofitable
> Seem to me all the uses of this world,

and while causative factors may be suggested, as often as not he tells us, in the words of the Merchant of Venice,

> In sooth, I know not why I am so sad.
> . . . . . .
> And such a want-wit sadness makes of me
> That I have much ado to know myself.

The depressive may seek advice first of all on account of somatic symptoms, complaints of indigestion and other abdominal discomforts, or he worries about his heart. Broken and unrefreshing sleep and a sense of weight on the head or of dulness in the head are frequent complaints. Libido is usually reduced. Often the patient feels at his worst on waking and improves as the day goes on. These symptoms are like those complained of by the patient with the anxiety state except that other more significant complaints may be elicited by inquiry. The depressive finds increasing difficulty in pursuing his normal occupation and recreations, and experiences a distressing lack of zest for living. Usually he has become aware of this change in himself weeks or months before his family has noticed any altered demeanour. A tactful inquiry about suicidal inclinations seldom offends the patient and rather makes him feel that his case is understood. Any doubt about endogenous depression as against an anxiety state will be dispelled at the stage when the patient no longer responds to reassurance, expresses regret over quite trivial and especially long past shortcomings, and begins to avoid his associates. The history of some functional disturbance years previously, necessitating absence from school or employment and

accompanied by insomnia, loss of appetite and depression, should assist towards a quicker recognition of the real nature of such symptoms when they recur.

Involutional Melancholia.

Involutional melancholia was regarded by Kraepelin as distinct from depression occurring in cyclothymics, and following his formulation it is usual to put into this category cases with the following features: (i) Occurrence during the fourth and fifth decades. (ii) Absence of a history of a previous attack of mental disorder, though the patient is often described as having been a chronic worrier. (iii) Gradual onset of symptoms over a period of months or even over a year. (iv) Little retardation in speech and movement. (v) Prominence of somatic symptoms, preoccupation with manifold bodily discomforts, and later, hypochondriacal delusions. (vi) Frequent denial by the patient of the existence of the objects of his normal interest and affection —so-called nihilistic delusions. The patient at first complains of reduced awareness of his external environment, then of the loss by death or otherwise of his family, or of his possessions. (vii) As in other depressions, reduction in sleep, appetite and libido, with suicidal inclinations.

The condition may be diagnosed with more confidence when depressive features become prominent, and especially when curtailment of activity and increasing concentration on self to the exclusion of the usual external interests cannot be ascribed to visceral disease, or debility. While no doubt endocrine deficiencies play some part in causation, the administration of hormones is rarely beneficial, while convulsive therapy is strikingly successful in most cases.

Schizophrenia.

The term schizophrenia is appropriately applied to certain mental abnormalities developing in the second and third decades at a stage when the diagnosis of *dementia præcox* is not yet justified, even though some permanent and also progressive reduction in efficiency is to be feared in most instances. The cardinal features of schizophrenia are perhaps best understood in contrast to manic and depressive states. Whereas in the latter states thought, affect and behaviour are consistent, in schizophrenia there is inconsistency, and the observer has much greater difficulty in appreciating what goes on in the mind of a schizophrenic than in manics and depressives.

Thought.

Thought becomes disconnected, so that the observer finds difficulty in following the train of thought, even though the patient, who may give the impression of being confused, speaks slowly and deliberately. Ideation is scattered, and the association of ideas instead of being direct follows what my old teacher Professor Mapother called the "knight's move".

These peculiarities may be noted on listening to the patient's conversation for a few minutes, and on giving him a short story to read and observing his recall of the details. The schizophrenic is often at first aware of difficulty in formulating and expressing his ideas, but later may be quite surprised that he is not understood. Sometimes one may note "blocking" when the patient lapses into silence in the course of a conversation. A definite psychotic stage is reached with the occurrence of delusions of external influence, hypnotism or thought control, and of ideas of reference, mystic interpretations of experiences, and hallucinations.

Affect.

Many schizophrenics have from early years been noted as lacking in affection towards their parents and siblings, and as they grow up they exhibit an attitude of cool detachment and indifference to the feelings of others, as well as becoming lone wolves in their families and social groups. Perhaps the most ominous feature of all in a kaleidoscopic symptomatology is the development of apathy, loss of regard for the future and of ambition, and in later stages carelessness for appearance and personal hygiene. In some instances incongruous laughter, giggling and "smiling to himself" may be noted. Depression and suicidal impulses are common in the hebephrenic variety, giving way to apathy in course of time.

Behaviour.

The schizophrenic may complain of flagging energies, which he is apt to ascribe to physical illness at first, but later to control by some external agency, a power that prevents him from pursuing his normal mode of life, and makes him feel an automaton. Other psychotic rationalizations may be suggested, such as drugging or the effect of noxious gases. Associated with the emotional apathy (it may be both result from some morbid development in the hypothalamus and its connexions) is the gradual decline in efficiency and energy. The schizophrenic just slumps, although usually some years have passed before parents and others appreciate that the adolescent who promised so well is sliding down the occupational scale. Oddities in behaviour, such as mannerisms and grimacing, are less significant as early manifestations. A schizophrenic may come under notice first for an aggressive, even homicidal, act or less serious delinquency, though the history will usually reveal that a significant change in disposition has been taking place for a considerable time.

Varieties of Schizophrenia.

Brief reference may be made to four common varieties of the schizophrenic process:

1. The simple variety, with gradual emotional deterioration and increasing vegetation.

2. The hebephrenic variety, often with a "psychoneurotic" or depressive onset, followed in the course of months by hallucinations and delusions, and emotional apathy. At a recent symposium in London hebephrenia was described by one speaker as "the most primarily malignant type of schizophrenia in spite of all the new treatments". When an adolescent fails to respond to various measures appropriate in the treatment of psychoneurosis, hebephrenia is to be feared.

3. The paranoid variety, with a variety of more or less absurd or fantastic hallucinations and delusions, but with less emotional deterioration and general disorganization of the personality than with hebephrenia.

4. The katatonic variety, with states of inhibition or excitement rather than of emotional depression or elation, which may come under notice in acute episodes. When these occur in the course of or following febrile illnesses, they may not be distinguished so easily from toxic delirious or confusional states, in which the prognosis is much better.

Differential Diagnosis of Psychoses in Childhood and Adolescence.

Mental Deficiency.

The intellectually subnormal may also be dull temperamentally. The condition becomes manifest in early years, unlike schizophrenia of the simple variety which develops at puberty or later. Mental defectives, however, are not immune from manic-depressive or schizophrenic psychoses.

Juvenile Paresis.

Juvenile paresis may present as simple deterioration or with a more florid hallucinatory and delusional psychosis, before typical physical signs appear.

Instability of Adolescence.

According to constitutional endowment and environmental stresses some adolescents pass through a phase of moodiness, emotional instability, hypochondriacal preoccupation, antagonism to their elders, or intense concern over religious and ethical problems, which need not occasion alarm unless there is serious interference with normal activities. But something more will be needed than sympathetic understanding and practical advice should these manifestations of a troubled adolescence persist, since they may be the prodromes of a manic-depressive or schizophrenic psychosis.

Psychoses in Childhood.

Psychoses are rare before the second decade, though often a change in disposition towards introversion has been noted in schizophrenics long before the occurrence of actual psychosis. Typical katatonic states may develop in childhood, usually with an unfavourable prognosis, or phases of depression with failure of appetite, listlessness and dulness, in the absence of any physical cause.

Paranoid States.

Paranoid states include paraphrenia and paranoia, psychoses of maturity in which there is an insidious development of delusional systems. In most instances the

patient over a number of years has been morbidly suspicious, distrustful of others, tending to harbour grudges and grievances and absurd prejudices, misinterpreting people's intentions and meanings, constantly taking things the wrong way, and antagonizing his associates by his touchiness and proneness to take offence. These paranoid personalities are much more numerous than the cases which come under notice because of antisocial conduct motivated by a system of delusions. In contrast with manic states and the grandiose variety of general paresis there is no real emotional exaltation, and the delusions appear to have grown out of the personality rather than to be part of an attack of mental disorder. Sometimes well systematized delusions, for example, accusations of infidelity, are expressed quite suddenly and appear to have developed at a recent date. In these "acute paranoias" a toxic factor, especially alcohol, should be sought, and the prognosis is favourable.

Delirious and Confusional States.

The outstanding features of delirious and confusional states are intermittent or sustained clouding of consciousness often together with changing hallucinations and delusions. The onset is usually fairly abrupt, the patient becomes restless by day and wakeful at night, and hallucinations become apparent at first when the patient's attention is not directed outwards and especially at night. These states accompany or follow infective or exhausting illnesses, childbirth, poisoning by inorganic or organic substances, especially intoxication by alcohol and sedative drugs, cerebral arteriosclerosis and other organic cerebral disorders. Alcoholics may manifest acute delusional states with very little clouding of consciousness and running a brief course. Some apparent confusional states with slow gradual onset, indifference and lack of responsiveness to surroundings and an appearance of depression or apathy—stuporose states—more properly belong to the category of melancholia or schizophrenia.

Subthyroidism.

Gradually increasing disinclination for mental and physical effort, lethargy and mental dulness are more characteristic of subthyroidism than depression. Mental confusion with aural hallucinations has also been observed. The diagnosis may be confirmed by determination of the basal metabolic rate.

Hyperthyroidism.

Severe toxic delirium is a rare complication nowadays with earlier diagnosis, improved operative techniques and more effective medication.

Cerebral Space-Occupying Lesions.

Mental changes due to direct involvement of forward areas or to increased intracranial pressure are usually gradual in development. According to the personality, depressive or paranoid reactions may be "released", and especially with frontal lesions symptoms indicating increased pressure and physical signs may not occur for many months. Bouts of headache and drowsiness are of significance. Lumbar puncture should not be performed unless neurosurgical facilities are available, and in any case the selection and performance of special diagnostic procedures are best left to the neurologist or neurosurgeon.

Epilepsy.

A variety of psychotic episodes, such as confusion, depression and excitement, may follow minor or major attacks or be associated with the epileptic constitution, and are usually of brief duration.

Electroencephalography may reveal an unexpected pathological condition or focus even when the history is that of typical idiopathic epilepsy.

Vitamin Deficiency.

Deficiency in nicotinic acid and thiamine may occur when food intake has been insufficient, as in exhausting illnesses, *hyperemesis gravidarum* and alcoholism (confabulatory psychosis of Korsakoff and Wernicke's encephalopathy); also in elderly persons who have neglected their diets. Depression, confusion and paranoid symptoms appear, and dementia may supervene.

Dementia.

In cerebral degenerative states the common mental symptoms may be classified as follows: (*a*) Intellect: defects of comprehension and of orientation in time and place; failure of memory and of judgement. (*b*) Affect: irritability and emotional lability. (*c*) Conduct: decline in standards of behaviour, stupid actions, acquisitive and sexual misdemeanours, immoderate use of alcohol.

The dementing patient comes under medical notice most often on account of his failing memory or his tendency to wander and become lost, or because of some unwelcome action. Sometimes depression and morbid suspicion in the elderly precede the definite indications of mental decline.

True dementia results from irreversible destruction of neurons, some of the causes of which call for special mention:

1. Cerebral trauma followed by inability to sustain attention, impaired comprehension and fatuity. "Punch-drunkenness" is an example.

2. Cerebral infections, especially epidemic encephalitis and neurosyphilis. Chronic encephalitics are often mildly euphoric and suffer some decline in mental ability, especially on the creative side.

3. Neurosyphilis. The most common mental complication of neurosyphilis is dementia, which may be stationary or progressive, and it is important to remember that physical signs may be minimal. A history of earlier infection and treatment may be a guide, but many cases are recognized only after lumbar puncture. The classical euphoric cases with grandiose delusions and acute delirious forms are far less common. Advice may be sought after an epileptiform convulsion.

4. Cerebral arteriosclerosis. Cerebral arteriosclerotics are subject to confusional episodes. Headaches, insomnia and focal signs are common, and mental impairment may follow thrombosis or hæmorrhage, or develop gradually through widespread arteriolar degeneration. In the crises of hypertensive encephalopathy the mental state is one of delirium or confusion, which may occur also with myocardial failure and uræmia.

5. Huntington's chorea. This condition, inherited directly as a Mendelian dominant, begins with irritability and choreiform-athetoid movements, followed by dementia.

6. Alzheimer's and Pick's scleroses. The conditions are often difficult to distinguish clinically, even when dementia is well advanced. In both types there are focal signs affecting speech principally. Epileptiform convulsions occur in the Alzheimer variety.

Special Diagnostic Tests.

Electroencephalography should be used in the investigation of mental states and disorders of conduct which may have an epileptic basis. Behaviour disorders following trauma may be associated with dysrhythmia in the temporal lobe or elsewhere in the cerebral hemispheres, without neurological signs. The electroencephalogram may be of value in determining whether focal signs are due to a localized lesion or to a generalized cerebral pathological condition. The development of techniques for determining abnormal rhythms in the basal ganglia promises to throw light on the physical basis of manic-depressive and schizophrenic states.

Psychological tests have a limited application to diagnosis owing to the patient's inability to cooperate. No tests of temperament, emotion and orectic qualities have yet been devised to equal the determination of intelligence. Something, however, may be learned from a patient's reaction to a formal test, as indeed from his response to any other situation. The Rorschach "ink-blot" projective tests aim at revealing the structure of personality and the pattern of symptoms and signs of disordered mental functions, but as diagnostic instruments they supplement rather than supplant history taking and clinical observation.

W. S. DAWSON,
Sydney.

British Medical Association News.

SCIENTIFIC.

A MEETING of the South Australian Branch of the British Medical Association was held on July 31, 1952, in the Verco Theatre, Institute of Medical and Veterinary Science, Adelaide, DR. B. S. HANSON, the President, in the chair.

Upper Abdominal Pain in General Practice.

DR. C. YEATMAN read a paper entitled "Upper Abdominal Pain in General Practice" (see page 216).

DR. F. BOYD TURNER said that Dr. Yeatman had dealt with some of the most difficult diagnostic problems of upper abdominal pain and had pointed out the responsibility of the attending practitioner. He had not dealt with the common straightforward conditions, such as peptic ulcer, but had called attention to several interesting and not infrequent conditions. He had suggested the need for a careful history and thorough examination as necessary preliminaries to the ordering of special investigations. Dr. Turner said that other points were of importance in regard to children. Upper abdominal pain was not a frequent occurrence, but it might be severe and puzzling before or during an attack of asthma, and it might be associated with the so-called cyclical vomiting syndrome. A family history of migraine was often associated in children with recurrent upper abdominal pain with or without vomiting. Epigastric pain might be the presenting symptom of rheumatic fever in a child, when it was usually associated with a history of fatigue *et cetera*. Dr. Turner endorsed Dr. Yeatman's insistence that a planned attack on difficult diagnostic problems be made by the attending practitioner.

DR. H. A. MCCOY referred to the small but significant assistance given by X-ray investigation in establishing the diagnosis of pancreatitis. The importance of estimating accurately tenderness on palpation over the pancreas with the patient in the upright and supine positions was mentioned. Reference was made to hiatus hernia in relation to the types of hernia, and to the associated presence of œsophagitis or peptic ulcer in the œsophagus. The importance was stressed of taking measures to produce herniation by suitable "positioning" of the patient, and by encouraging voluntary actions of the patient calculated to produce hernia (abdominal bearing down, swallowing and deep breathing). Dyskinesia of the gall-bladder (spastic and atonic types) was mentioned. The probable upset of neuromuscular mechanism which might give rise to that condition was noted. The question was raised of the relation of that entity (observed not infrequently in radiological investigation of the gall-bladder) to clinical classification of dyspepsia.

DR. W. G. NORMAN said that he wished to refer to the first case quoted by Dr. Yeatman, and in particular to the problem of prolonged localized spasm sometimes seen in radiological examinations of the colon. Dr. Norman said he believed that he was responsible for the barium enema examination performed in the first case mentioned, which was one of paralytic ileus associated with gall-bladder disease. In that case X-ray examination revealed an area of constriction in the lower part of the pelvic colon, where the passage of barium was considerably delayed. In view of the symptoms and dilated gas-filled colon proximal to that point he was tempted to diagnose the presence of an organic obstructive lesion at that site, though subsequent events proved that the appearances must have been the result of a prolonged localized spasm.

Dr. Norman went on to say that he recalled two other recent instances in which similar appearances had confused the radiological diagnosis. The first case was that of a middle-aged woman with a hard, palpable mass in the left upper quadrant of the abdomen. Symptoms were not conclusive, but a clinical diagnosis of neoplasm in the stomach or of the splenic flexure was made, and the patient was referred for a barium meal X-ray examination. That examination revealed nothing conclusive in the stomach, but considerable gaseous distension of the colon proximal to the site of the mass was observed during fluoroscopic examination, and that was later confirmed by films. A follow-through of the barium meal showed a region of narrowing and delay in the passage of barium through the colon at the site of the mass, and it was considered likely to be a neoplasm of the transverse colon. However, a barium enema examination undertaken for confirmation revealed a perfectly normal colon, and in the light of that result the barium meal examination was repeated with special attention to the lower margin of the stomach. A small indentation was noted at that site, and the appearances then suggested that the mass arose in the lower margin of the body of the stomach. It was later confirmed as a gastric neoplasm, and it appeared that the proximity of the mass to the transverse colon had resulted in a persistent regional spasm which accounted for the appearances at the first examination.

Dr. Norman said the second case presenting similar appearances was that of an elderly man, whose condition was clinically diagnosed as probably carcinoma of the lower bowel. A barium enema examination revealed a persistent, fairly ring-like narrowing in the middle of the rectum, seen continuously during fluoroscopy and shown in films taken during and after fluoroscopy. Dr. Norman said that after the X-ray examination he had examined the patient rectally, and was surprised at the smoothness and size of the lumen in what had appeared to be a constricting neoplasm of the rectum. However, later sigmoidoscopic examination revealed no abnormality in the rectum, and Dr. Norman concluded that what he had felt was the middle semilunar fold of the rectum associated with localized, persistent spasm.

Dr. Norman said, in conclusion, that in his experience localized spasm could be a difficult problem to the radiologist in the diagnosis of obstructive lesions of the colon by opaque media examinations.

DR. A. R. SOUTHWOOD said that the current tendency was to pay greater attention to laboratory studies than to clinical observations. The consulting room and the ward were the places to learn medicine. Dr. Southwood was accustomed to telling students in the clinical years that time spent out of the wards was time wasted. As long as there had been doctors they had doubtless had a great deal of concern in the diagnosis of belly-ache. Dr. Yeatman had applied his sound clinical knowledge to some aspects of the problem. Since his days as medical superintendent at the Adelaide Hospital, Dr. Yeatman had had thirty years of general practice in the country and the city, and he had done senior medical work in the two World Wars. Such wide experience, and such contact with large numbers of patients in the early stages of illness, gave Dr. Yeatman's observations exceptional value. Dr. Yeatman's work had shown that hiatus hernia should be thought of when certain types of upper abdominal disturbance occurred. Peptic ulcer was so common that clinicians were tending to attribute most abdominal pain to that cause. Of course, the clinician had to keep in mind a great number of possible causes of trouble when he studied the case of the patient with abdominal pain. "What you don't think of, you don't diagnose" was a very good, if old, aphorism.

DR. C. T. PIPER asked Dr. Yeatman's opinion of the diagnostic value of a quarter of a grain of morphine given hyperdermically in case of doubt, the principle being that pain not relieved was almost certainly that of major coronary occlusion, that a pain temporarily relieved was that of perforating ulcer, and that a pain relieved for any considerable length of time was due to colic. There were occasions when other means of diagnosis were not readily available, and it was his opinion that the loss of time in operating on a patient with a perforated ulcer was balanced by the diminution of shock. There seemed to be no danger in the procedure, so long as the possibility of perforated ulcer was borne in mind.

DR. W. J. CLOSE said that he had been associated with Dr. Yeatman at Port Pirie for some years, and had valued the association highly. Dr. Yeatman had not mentioned their common experience in the lead-smelting district, where the problem of diagnosis of many acute abdominal conditions was made difficult by the necessity of excluding lead colic. More than once Dr. Close had assisted Dr. Yeatman to remove a gangrenous appendix from patients whom Dr. Close had in previous similar attacks treated as suffering from lead colic. Probably the account had been evened by Dr. Close's requesting similar assistance from Dr. Yeatman with patients whom the latter had previously treated. It was an important question in areas where patients were exposed to lead, because the treatment for lead colic in vogue at that time was the giving of repeated magnesium sulphate enemata and of opiates. That would, of course, be entirely contraindicated when an acute condition of the abdomen such as appendicitis might be present.

NEW SOUTH WALES BRANCH NEWS.

Federation of Country Local Associations' Post-Graduate Instruction Course.

THE second annual post-graduate instruction course arranged by the Federation of Country Local Associations of the New South Wales Branch of the British Medical Association will be held at Orange, New South Wales, from March 9 to 13, 1953. This course is based on the first course at Armidale in 1952, with specialist speakers from the capital cities and other speakers from rural areas. There will be four main lecturers: Professor Lorimer Dods (Professor of

Child Health in the University of Sydney) will give two or three talks on "Acute Rheumatism" and "Some Pædiatric Problems"; Professor Bruce Mayes (Professor of Obstetrics in the University of Sydney) will give three talks and, if feasible, perform a Cæsarean section with a commentary; Dr. K. B. Noad (honorary physician, Sydney Hospital) will give three talks on "Epilepsy and Allied Disturbances of Consciousness, with a Discussion on Treatment", "Pain in the Face" and "Pain in the Arm"; Dr. G. R. A. Syme (honorary surgeon to in-patients, Royal Melbourne Hospital) will give three talks on "Varicose Veins", "Surgery of the Gall-Bladder" and "Aspects of Gastric Surgery".

Other speakers, mainly from country centres, will include the following: Dr. W. E. Audley, on "Admitting Patients to Mental Hospitals" and "Reception Houses"; Dr. R. E. Buckingham, on "Local Anæsthesia in Ear, Nose and Throat Surgery"; Dr. H. O. Chapman, on "Recent Advances in Treatment of Epilepsy"; Dr. B. Cook, on "Emergency Surgery with Reference to Resuscitation and Refrigeration Anæsthesia"; Dr. N. R. Godby, on "X-Ray Examinations in Modern Treatment and Diagnosis of Pulmonary Tuberculosis"; Dr. P. Millard, on "Lesions Caused by the Rove Beetle"; Dr. G. Young, on "Flying Doctor Service at Forbes".

These lectures will be spread over the five days of the course, commencing on March 9. In addition there will be a demonstration of clinical cases at the Orange Base Hospital on Monday morning, a session on diseases from animal sources on Tuesday morning, with talks and demonstrations, and a demonstration of cases of general interest at the Mental Hospital on Thursday morning. There will be also a number of social functions. The course concludes on Friday afternoon.

The course fee will be £8 8s. for the five days and social functions, or £2 2s. a day. Further details can be obtained from Dr. S. R. Dawes, Honorary Organizing Secretary, 83 Kite Street, Orange, New South Wales.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

PIRATES IN PHYSIC.[1]

[*Australian Medical Journal*, February, 1864.]

It is no doubt exceedingly flattering to be complimented for what we have done in the way of medical legislation, and when in a recent number, the Lancet recommends the adoption of the seventh clause of our Medical Practitioners Act as one which might advantageously be included in the English statute, we naturally plume ourselves upon having gone somewhat further in our reforms than our English brethren. It is however, not reassuring to reflect that though our local Act is very explicit in defining the penalties incurred by those persons who fraudulently represent themselves as qualified medical practitioners, the offence is still committed with as much impunity as if no such provision existed. The laborious, and for a long period fruitless endeavours that were made to obtain special legislation by which we should be protected in the practice of our art from the nefarious competition of the unprincipled charlatan seem to have been but of small avail in bringing about the end they were designed to compass. The colony still swarms with the vampires that fatten upon the life of an overtrusting public whose health they ruin and whose pockets they drain. In this city of Melbourne they abound in clusters doing a thriving business: and not only inflicting serious bodily injury on their unhappy dupes but reaping the rewards that should go to the educated medical man for services honestly rendered and conscientiously discharged. It would seem as if not a small portion of the public were activated by the common impulse of mankind to prefer what is unlawful because it is forbidden and hence it happens not infrequently that otherwise intelligent and sensible people go to these men and pay them large sums of money, when they would grudge a reasonable fee to a respectable surgeon for services really valuable. Such persons go to them, knowing them to be unqualified, and in the full belief that the scoundrels into whose hands they so foolishly trust their lives are acting in flat defiance of the law. There is however a much larger class who attach full credence to whatever representations are made in declaration of the competence and legal sufficiency of such advisers and who are not unapt to regard them as ignored by the profession from a feeling of jealousy at their really superior attainments. People of this description have just sufficient glimmering of what is meant by a legal qualification, to know that it consists in the possession of a certificate of some kind and it is only necessary therefore for these pirates in physic to announce that they possess them, to be permitted the full exercise of their experiments upon the bodies and purses of their patients.

In England a distinct organization having the special purpose of putting the law in motion against such offenders has worked very excellent results and it seems as if the real utility of our Act would not be demonstrated until some similar concerted endeavour be made on our part. The field for the operation of such an association is unfortunately very extensive and it consorts neither with our dignity nor our interests that the line which ought to indicate the demarcation between ourselves and the unscrupulous impostors who appropriate our rights by pretending to be of us should have remained so long indistinctly drawn. A few marked examples of bringing to punishment the scoundrels that thus defy the law and fatten on what should be our gains would speedily bring all the rest to a prompt and practical acknowledgement of the rights of which they now openly rob us.

[1] From the original in the Mitchell Library, Sydney.

Correspondence.

MEMORIAL TO THE LATE SIR HUGH CAIRNS.

SIR: There has recently been formed in Adelaide an association whose aim is to found a worthy memorial to the late Sir Hugh Cairns. Lady Cairns and the parents of the late Sir Hugh have expressed the wish that the memorial take the form of a prize to be awarded to a scholar of the Adelaide Boys' High School who is proceeding to the study of medicine at the University of Adelaide. They have donated the sum of £300 to inaugurate the fund, and the committee hopes to raise an amount sufficient to provide a substantial annual prize as well as a memorial in the medical school.

It is thought that there will be many among your readers who would desire to contribute to such a memorial. Should such be the case, contributions may be forwarded to the secretary, Mr. R. A. West, 125 First Avenue, Joslin, or to the secretary of the South Australian Branch of the British Medical Association, North Terrace, Adelaide.

Yours, etc. (for the Hugh Cairns Memorial Association),

C. O. F. RIEGER,
Vice-Chairman.

Adelaide,
January 23, 1953.

SHOT IN AN APPENDIX.

SIR: Yesterday I removed an "interval" appendix from a female patient, who for years has eaten considerable quantities of wild game, in particular duck and quail. At the distal end of the organ, neatly arranged in line, were nine shot-gun pellets, also several large grains of sand. For the information of the more sporting members of the profession, the shot appeared to be number 6 and number 10.

Yours, etc.,

LESLIE CLAY.

P.O. Box 120,
Bairnsdale,
Victoria.
January 23, 1953.

DEPARTMENT OF RAILWAYS OCCUPATIONAL THERAPY UNIT.

SIR: An Occupational Therapy Unit has been established by this department and is now in operation at the Railway Offices, 4th Floor, 509 Pitt Street, Sydney, opposite Central Station.

Members of the medical profession are invited to make use of this Unit for any of their patients who are railway employees and who are in need of occupational therapy.

An invitation is extended to all medical practitioners to inspect the Unit in operation, at an Open Afternoon on Thursday, February 19, 1953, between 2 p.m. and 5 p.m.

Yours, etc.,

M. R. FINLAYSON,
Director of Medical Services.

Department of Railways,
New South Wales,
January 27, 1953.

STRESS AND THE ADAPTIVE HORMONES.

SIR: In perusing the current literature with which this journal is concerned, we note that an ever-increasing number of its articles deals with problems pertaining to research on "stress" and the so-called "adaptive hormones" (ACTH, STH, corticoids, adrenergic substances *et cetera*).

We are writing you because, in our opinion, the success of research in this complex and rapidly developing field largely depends upon the prompt availability and evaluation of relevant publications, a task for which we should like to solicit the assistance of your readers.

In 1950 our institute had initiated the publication of a series of reference volumes entitled "Annual Reports on Stress" (Acta Medical Publishers, Montreal), in which the entire current world literature is surveyed every year (usually between 2000 and 4000 publications). Up to now, we had to compile the pertinent literature partly from medical periodicals, monographs, abstract journals and partly from reprints sent to us by the authors themselves. Of all these, reprints proved to be the best source of data which we felt deserved prompt attention in our annual reports. Hence, in the past, we have sent out several thousand individual reprint requests to authors of whom we knew that they are currently engaged in research on stress and allied topics. Even this procedure did not give us the wide coverage which would be desirable, because it is materially impossible to contact all these authors individually and it often takes too much time to get the requested reprints.

It is evident that in order to ensure prompt inclusion of publications in the annual reports, these surveys must develop into a cooperative effort between the authors of original papers and the reviewers. This cooperation was greatly enhanced of late by the publication of announcements, in several medical journals, encouraging investigators interested in stress research to send us their reprints for this purpose as soon as they become available.

We should be grateful if by the publication of this note you would also bring this problem to the attention of your readers.

Yours, etc.,

HANS SELYE, M.D., Ph.D., D.Sc., F.R.S.(C.),
Professor and Director of the Institute of Experimental Medicine and Surgery,
Université de Montréal,

ALEXANDER HORAVA, M.D.,
Co-author of the "Annual Reports on Stress".

Case Postale 6128,
Montreal,
January 20, 1953.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Course in Diabetes Mellitus.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that a course in *diabetes mellitus* will be held from Tuesday to Friday, March 10 to 13, 1953. Dr. R. D. Lawrence, M.A. (Aberdeen), M.D., F.R.C.P. (London), of King's College Hospital, London, will take part in the course. The programme is as follows:

Tuesday, March 10: 3 p.m., case demonstration, Dr. Keith Harrison, Diabetic Clinic, Royal Prince Alfred Hospital; 8.15 p.m., "Types of Human Diabetes and their Treatment", Dr. R. D. Lawrence, Stawell Hall, 145 Macquarie Street.

Wednesday, March 11: 11.30 a.m. to 1 p.m., case demonstration, Dr. R. D. Lawrence and staff of diabetic clinic, Maitland Lecture Theatre, Sydney Hospital; 2.15 p.m., at William H. Crago Council Room, British Medical Association House, "Biochemical Aspects of Diabetes", Dr. E. M. A. Day; 3.15 p.m., "The Treatment of Diabetes Mellitus", Dr. F. Hales Wilson; 4.15 p.m., "Surgery in Diabetes", Dr. F. H. Mills.

Thursday, March 12: 2.15 p.m., at William H. Crago Council Room, British Medical Association House, "Diabetes in Children", Dr. S. E. J. Robertson; 3.15 p.m., "The Treatment of Diabetic Coma", Dr. W. Wilson Ingram; 4.15 p.m., "Vascular Complications of Diabetes", Dr. J. Kempson Maddox; 8.15 p.m., "Diabetes in General Practice", Dr. R. D. Lawrence, Stawell Hall, 145 Macquarie Street.

Friday, March 13: 1.15 p.m., seminar, "Diabetic Neuropathy", Dr. R. D. Lawrence, Royal Prince Alfred Hospital.

Fee for attendance is £5 5s. As the course is a limited one, early enrolment is essential, the closing date for applications being March 3, 1953. Applications, enclosing remittance, should be addressed to the Course Secretary, The Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney. Telephones: BU 5238, BW 7483.

Annual Subscription Course.

Dr. R. D. Lawrence, M.A. (Aberd.), M.D., F.R.C.P. (London), of King's College Hospital, London, will give the following lectures in the Stawell Hall, 145 Macquarie Street, Sydney, at 8.15 p.m.: Tuesday, March 10, "Types of Human Diabetes and their Treatment"; Thursday, March 12, "Diabetes in General Practice".

Sir Allen Daley, B.Sc. (London), M.D., F.R.C.P. (London), D.P.H. (Cantab.), Medical Officer of Health, County of London, will be visiting Sydney under the auspices of the Nuffield Foundation and will speak on "London during the Blitz" in the Wallace Theatre, University of Sydney, on Friday, April 10, at 8.15 p.m. Wives and friends of members will be welcome, provided prior application to the committee is made in order to prevent overcrowding.

Dr. Macdonald Critchley, M.D., F.R.C.P. (London), Dean and honorary physician at the National Hospital for Nervous Diseases, Queen Square, and Director of the Institute for Nervous Diseases of the University of London, will give the following lectures, which are open to all members of the subscription course: Monday, April 13, "Thought and Language"; Thursday, April 16, "The History of European Neurology"; Monday, April 20, "Headache"; Friday, April 24, "Neurology of the Hand"; Monday, April 27, "The Body Image in Neurology"; Friday, May 1, "Neurological Aspects of Criminology: (i) The Crimes of Dr. Marcel Petiot, (ii) Peter Kurtein, the Mass-Murderer of Dusseldorf". All six lectures will be held in the Stawell Hall, 145 Macquarie Street, Sydney, at 8.15 p.m.

The annual subscription course covers attendance at lectures by overseas visiting lecturers. An annual charge of £2 2s. covers all such lectures during the year, from July 1 to June 30, but excludes special courses. It will, however, include other specially arranged activities. The fee for resident medical officers is £1 1s. Subscriptions to the annual subscription course are deductible for taxation.

A printed diary card is forwarded to all members each month setting out special lectures and activities.

Courses in Diagnostic and Therapeutic Radiology.

Courses in diagnostic radiology and therapeutic radiology will begin on March 16, 1953, and continue for a period of twelve months each. Fees for attendance will be £94 10s. at each course, the closing date for applications being March 2, 1953. These courses will be held subject to a sufficient number of enrolments being received. Further details may be obtained on application to the Course Secretary of the Committee, 131 Macquarie Street, Sydney, BU 5238, BW 7483.

General Revision Course, 1953.

The annual general revision course for 1953 will be held for two weeks from April 20 to May 1 inclusive, and will be a comprehensive survey of modern trends in diagnosis and treatment of special value to general practitioners. Highlights of the course will include the following: lectures in neurology by Dr. Macdonald Critchley, M.D., F.R.C.P.

(Lond.), Dean and honorary physician at the National Hospital for Nervous Diseases, Queen Square, London, and Director of the Institute for Nervous Diseases of the University of London; seminars on advances in treatment, gynæcology and obstetrics; a panel consisting of experienced country and suburban practitioners who will discuss problems in general practice. The programme will also include the popular session "Question Time".

Fee for attendance will be £12 12s. (full time) and £6 6s. (for one week or part-time attendance). Early written application is essential and should be made to the Course Secretary, The Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney. Telephones: BU 5238, BW 7483.

Annual Post-Graduate Oration.

The sixth Annual Post-Graduate Oration on "The Life and Times of William Redfern" will be delivered by Professor E. Ford, O.B.E., M.D., D.T.M., D.P.H. (London), F.R.A.C.P., Dean of the Faculty of Medicine, in the Great Hall of the University of Sydney, on the evening of Wednesday, April 29, 1953. Members of the subscription course will automatically be placed on the invitation list. Others wishing to have their names placed on the list are requested to communicate with the Course Secretary.

Royal Australasian College of Surgeons.

PRIMARY EXAMINATION FOR THE F.R.A.C.S.

A PRIMARY examination in anatomy (including normal histology) and applied physiology and the principles of pathology will be conducted in Melbourne and Sydney in November, 1953.

The written papers will begin simultaneously in both cities on Thursday, November 12, 1953. The examiners will visit both cities for the purpose of conducting the viva-voce section of the examination.

The examination is reciprocal with the primary examinations for Fellowship of the Royal College of Surgeons of England, the Royal College of Surgeons of Edinburgh, the Royal College of Surgeons in Ireland and the Royal Faculty of Physicians and Surgeons of Glasgow.

Each candidate will be notified by post of the result at the termination of the examination.

The examination is open to graduates of not less than one year's standing of a medical school approved by the Council of the College for the purpose.

Candidates must submit evidence of their qualification, and of the date of acquirement thereof.

Forms of application for admission to the examination may be obtained from the Secretary, Royal Australasian College of Surgeons, Spring Street, Melbourne, C.1.

When entering for the examination, candidates must state whether they desire to appear before the Board of Examiners in Melbourne or in Sydney.

The fee for admission, or readmission, to the examination is £15 15s., Australian currency (*plus* exchange on cheques drawn on banks outside Melbourne). The fee must be forwarded with the form of application so as to reach the Secretary at his office not later than October 1, 1953.

FINAL FELLOWSHIP EXAMINATION.

THE next meeting of the Court of Examiners for the final examination for Fellowship of the Royal Australasian College of Surgeons will be held at the College in Melbourne beginning on Thursday, May 7, 1953.

Candidates who desire to present themselves at this examination should apply, on the prescribed form, to the Censor-in-Chief for permission to do so on or before April 1, 1953. The appropriate forms are available from the Secretary, Royal Australasian College of Surgeons, Spring Street, Melbourne, C.1.

Candidates who have already been approved by the Censor-in-Chief, but who have not yet presented for examination, may present at this examination, provided they notify the Secretary of their intention to do so by April 1, 1953.

The examination fee is £21 *plus* exchange on cheques drawn on banks outside Melbourne, and must be paid to the Secretary by April 1, 1953.

The Council has decided that after May, 1953, the final examination will be conducted in general surgery and ophthalmology only. Therefore, the final examination in May, 1953, is the last occasion on which candidates may present for examination for Fellowship in the special branches of orthopædics, gynæcology and operative obstetrics, urology and laryngo-otology.

Beginning in 1954, the final examination in general surgery will be held twice in each calendar year, in the months of May and November. The exact dates of these examinations will be announced later. At least one final examination in ophthalmology will also be held in each year.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 3, of January 22, 1953.

CITIZEN NAVAL FORCES OF THE COMMONWEALTH.

Royal Australian Naval Reserve.

Appointment.—John Ewart Cawte is appointed Surgeon Lieutenant, dated 17th November, 1952.

Confirmation in Rank.—Surgeon Lieutenants (on probation) William Cleaver Woods, Barry Rutherford Grove and John Damien Tange are confirmed in the rank of Surgeon Lieutenant, with seniority in rank of 6th July, 1950, 18th August, 1950, and 12th February, 1951, respectively.

Royal Australian Naval Volunteer Reserve.

Promotion.—Surgeon Lieutenant Daintrey Ned Kekwick is promoted to the rank of Surgeon Lieutenant-Commander, with seniority in rank of 28th September, 1949, dated 26th March, 1952.

AUSTRALIAN MILITARY FORCES.

Royal Australian Army Medical Corps.

Retired List.

The following officers are placed upon the Retired List within Military Districts and on the dates as shown, with permission to retain their rank and wear the prescribed uniform:

2nd Military District.—Lieutenant-Colonel (Honorary Colonel) A. J. Murray, O.B.E., Majors A. B. Sullivan, W. R. Shaw, B. M. Riley and Lieutenant E. A. Rennie, 27th October, 1952.

4th Military District.—Majors C. H. Schafer, C. O. F. Rieger and W. H. Collins, D.S.O., 28th October, 1952.

5th Military District.—Honorary Lieutenant-Colonel R. D. M. Hall and Honorary Captains J. F. Ebsworth and H. T. Illingworth, 15th October, 1952.

Australian Regular Army.

Royal Australian Army Medical Corps.

1/8048 Captain J. L. Jameson is transferred to the Reserve of Officers (Royal Australian Army Medical Corps) (Medical) (1st Military District), 17th December, 1952.

2/40146 Captain (provisionally) F. J. Buchhorn is appointed from the Regular Army Special Reserve, and to be Captain, 24th November, 1952, with a Short Service Commission for a period of two years.

Regular Army Special Reserve.

Royal Australian Army Medical Corps.

NX700391 Honorary Captain J. H. G. Wells is appointed from the Reserve of Officers, and to be Captain (provisionally), 18th August, 1952.

The following officers relinquish the provisional rank of Captain and are transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (2nd Military District) in the honorary rank of Captain: NX700391 J. H. G. Wells, 2nd September, 1952, and NX700399 J. E Meredith, 23rd September, 1952.

The following officers are appointed from the Reserve of Officers, and to be Captains (provisionally): Honorary Captains NX700412 C. R. Boughton, 20th October, 1952, NX700416 R. W. Cumming, 10th November, 1952, NX700411 R. Bradbury, 20th October, 1952, NX700413 W. J. Lyons, 27th October, 1952, and NX700414 W. R. Chapman and NX700415 A. C. Bowring, 3rd November, 1952.

The following officers relinquish the provisional rank of Captain and are transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (2nd Military District) in the honorary rank of Captain: NX700405 C. B. Saunders, 28th October, 1952, and NX700412 G. R. Boughton, 4th November, 1952.

VX700300 Captain (provisionally) W. L. H. Armstrong relinquishes the provisional rank of Captain and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (3rd Military District) in the honorary rank of Captain, 2nd October, 1952.

Citizen Military Forces.

Northern Command: First Military District.

Royal Australian Army Medical Corps (Medical).—To be Captain (provisionally), 7th November, 1952: 1/61802 John Breinl. To be Major, 21st November, 1952: 1/21298 Captain R. Row.

The provisional rank of 1/39130 Captain P. J. F. Grant is confirmed. The following officers are appointed from the Reserve of Officers, and to be Captains (provisionally): Honorary Captains 1/33072 J. H. Grant, 21st October, 1952, and 1/39152 J. E. Mackay and 1/39153 T. M. Ferrier, 3rd November, 1952.

Southern Command: Third Military District.

Royal Australian Army Medical Corps (Medical).—The provisional rank of 3/50055 Lieutenant-Colonel (Temporary Colonel) R. Officer is confirmed. The following officers are appointed from the Reserve of Officers, 3rd November, 1952: Majors 3/157154 T. H. Steel and 3/157155 R. S. Lawson. To be Temporary Major, 9th September, 1952: 3/52176 Captain (provisionally) J. A. Forbes.

3/50010 Major K. B. Brown is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (3rd Military District), 15th November, 1952. To be Captain (provisionally), 5th December, 1952: 3/157156 Robert Mager Gray.

Central Command: Fourth Military District.

Royal Australian Army Medical Corps (Medical).—4/31901 Lieutenant-Colonel R. G. Champion de Crespigny relinquishes command of 1st Casualty Clearing Station, is appointed to command 104th Military Hospital, and to be Temporary Colonel, 1st October, 1952. 4/35205 Major J. M. McPhie ceases to be seconded for post-graduate studies in United Kingdom, 11th August, 1952. 4/32028 Captain W. I. Seith is appointed from the Reserve of Officers, 23rd October, 1952.

Tasmania Command: Sixth Military District.

Royal Australian Army Medical Corps (Medical).—The provisional rank of 6/15338 Lieutenant-Colonel C. W. Clarke is confirmed.

Reserve Citizen Military Forces.

Royal Australian Army Medical Corps.

2nd Military District.—Lieutenant-Colonel R. H. Small, E.D., is placed upon the Retired List with the honorary rank of Colonel, and with permission to wear the prescribed uniform, 27th October, 1952. Captain C. M. Taylor is placed upon the Retired List with the honorary rank of Major and with permission to wear the prescribed uniform, 27th October, 1952.

4th Military District.—Honorary Captains R. L. E. Walmsley and B. E. Wurm are retired, 28th October, 1952.

1st Military District.—To be Honorary Captains: Geoffrey Joseph Bendeich, 12th October, 1952, and Thomas Mayne Ferrier and John Ewan Mackay, 2nd November, 1952.

2nd Military District.—To be Honorary Captains: Roger Bradbury, 19th October, 1952, William John Lyons, 25th October, 1952, Aubrey Charles Bowring and Walter Raymond Chapman, 2nd November, 1952, Clement Russell Boughton, 19th October, 1952, and Robert Wellington Cumming, 9th November, 1952.

4th Military District.—Captain K. S. Hetzel is placed upon the Retired List (4th Military District) with permission to

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED JANUARY 10, 1953.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.[2]	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	12(10)	6(3)	..	..	..	..	..	..	18
Amœbiasis	..	2(2)	..	..	..	..	..	..	2
Ancylostomiasis	..	..	..	..	..	..	..	..	..
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	15(12)	..	..	..	..	..	..	..	15
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	2	..	10(10)	..	..	3	..	..	15
Diphtheria	8(5)	4(3)	2	..	7(6)	..	1	..	22
Dysentery (Bacillary)	..	3(3)	1(1)	..	1(1)	..	..	..	5
Encephalitis	2	2	..	..	..	..	..	..	4
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	2	..	..	..	..	..	..	2
Infective Hepatitis	..	7	..	..	16(13)	..	1	..	24
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	1	..	1	..	..	..	2
Leptospirosis	..	..	..	..	..	..	..	..	..
Malaria	..	..	..	..	..	..	..	..	..
Meningococcal Infection	5(5)	3(1)	..	1	..	2(1)	..	..	11
Ophthalmia	..	..	..	..	1	..	..	..	1
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	29(17)	19(13)	9(1)	15(11)	..	16(8)	..	..	88
Puerperal Fever	..	..	2	..	..	..	..	..	2
Rubella	..	105(71)	1(1)	..	4(4)	..	..	..	110
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	14(5)	38(25)	2(1)	7(6)	2(2)	1	..	..	64
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	..	..	..	..	..	..
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	..	8(5)	6(1)	3(3)	9(3)	7(2)	..	..	33
Typhoid Fever	..	..	..	..	..	..	..	..	..
Typhus (Flea-, Mite- and Tick-borne)	..	..	1	..	..	..	..	..	1
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

[2] Includes also figures for week ended January 3, 1953.

retain his rank and wear the prescribed uniform, 15th October, 1952 (in lieu of the notification respecting this officer which appeared in Executive Minute No. 219 of 1952, promulgated in *Commonwealth Gazette* No. 74 of 1952). To be Honorary Captain, 5th December, 1952: Thomas Hudson Beare.

ROYAL AUSTRALIAN AIR FORCE.

Permanent Air Force: Medical Branch.

The probationary appointment of the following Flight Lieutenants is confirmed: A. D. Litchfield (024304), M. N. McLaughlin (024303).

Kenneth William Frank Chambers (052798) is appointed to a short service commission, on probation, for a period of twelve months, 27th October, 1952, with the rank of Flight Lieutenant.

Ashton Edward Greentree (022681) is appointed to a short service commission, on probation, for a period of twelve months, 13th October, 1952, with the rank of Flying Officer.

Squadron Leader J. B. Craig (05799) is granted the acting rank of Wing Commander, 2nd October, 1952.

The resignation of Flying Officer D. B. McKillop (024158) is accepted, 30th October, 1952.

The short service engagement of Flight Lieutenant J. F. Marrington (021966) is extended for a period of three years, 1st November, 1952.

Australian Medical Board Proceedings.

NEW SOUTH WALES.

THE following have been registered, pursuant to the provisions of the *Medical Practitioners Act*, 1938-1950, as duly qualified medical practitioners: Playne, John Herbert, L.M.S.S.A., 1934, M.B., B.S., 1936 (Univ. London); Gordon, Alastair Robert Grant, M.B., Ch.B., 1945 (Univ. St. Andrews); Roffey, Edward Henry, M.R.C.S. (England), 1950, L.R.C.P. (London), 1950; Cohen, Henry, M.B., Ch.B., 1933 (Univ. Edinburgh), F.R.C.S. (Edinburgh), 1939.

The following additional qualifications have been registered: Gregg, Norman McAlister (M.B., Ch.M., 1915, Univ. Sydney), F.R.A.C.S., 1932, M.D., 1952 (Univ. Melbourne), F.R.C.O.G., 1952; Newman, Neville Maurice (M.B., B.S., 1946, Univ. Sydney), M.R.C.P. (London), 1951, D.C.H., R.C.P. (London), R.C.S. (England), 1952; Marks, James Keith Livingstone (M.B., B.S., 1942, Univ. Queensland), D.G.O., 1952 (Univ. Sydney).

QUEENSLAND.

THE following have been registered, pursuant to the provisions of *The Medical Acts*, 1939-1948, as duly qualified medical practitioners: Andrea, Brian Maxwell, M.B., B.S., 1951 (Univ. Sydney); Sanderson, Thomas, M.B., Ch.B., 1945 (Univ. St. Andrews), D.P.H. (Univ. Wales), 1951, D.T.M. and H. (Univ. Liverpool), 1952; Smith, James Tait, M.B., Ch.B., 1915 (Univ. Glasgow); Cohen, Henry, M.B., Ch.B., 1933 (Univ. Edinburgh), F.R.C.S. (Edinburgh), 1939; Campbell, Charles Haxton, M.B., B.S., 1950 (Univ. Sydney).

The following additional qualification has been registered: Henderson, David Arthur, M.R.A.C.P., 1952.

TASMANIA.

THE following have been registered, pursuant to the provisions of the *Medical Act*, 1918, as duly qualified medical practitioners: Chen, Vernon Terence, M.B., B.S., 1952 (Univ. Melbourne); Gibson, David Stuart, M.B., B.S., 1952 (Univ. Melbourne); Hadley, Hugh Malcolm, M.B., B.S., 1952 (Univ. Melbourne); O'Brien, Edmund Noel, M.B., B.S., 1952 (Univ. Melbourne); Armstrong, Philip John, M.B., B.S., 1952 (Univ. Sydney); Barnett, John Sadler, M.B., B.S., 1952 (Univ. Sydney); Bushby, Norman Russell, M.B., B.S., 1952 (Univ. Melbourne); Finkelstein, Ernest, M.B., B.S., 1952 (Univ. Melbourne); Hanks, Geoffrey Noel, M.B., B.S., 1952 (Univ. Sydney); Maxwell, Ian, M.B., B.S., 1952 (Univ. Sydney); Morris, John Craze Henry, M.B., B.S., 1952 (Univ. Melbourne); Patterson, William Hugh, M.B., B.S., 1952 (Univ. Sydney); Thompson, Daryl Phillip, M.B., B.S., 1952 (Univ. Melbourne).

The following additional qualifications were registered: Rayment, Dulcie Grace, D.G.O. (Dublin), D.R.C.O.G.; Stephenson, Arthur Lavender, M.S. (Sydney), F.R.A.C.S.

Deaths.

THE following death has been announced:

MANTON.—William Kildare Manton, on January 31, 1953, at North Bondi, New South Wales.

Diary for the Month.

FEB. 14.—Tasmanian Branch, B.M.A.: Annual Meeting.
FEB. 17.—New South Wales Branch, B.M.A.: Medical Politics Committee.
FEB. 19.—Victorian Branch, B.M.A.: Executive Meeting.
FEB. 24.—New South Wales Branch, B.M.A.: Ethics Committee.
FEB. 25.—Victorian Branch, B.M.A.: Council Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federal Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178 North Terrace, Adelaide): All Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

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